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ADDRESSES AND ORIGINAL ARTICLES

INFECTION AND ITS CONTROL IN CHILDREN'S WARDS *

By E. H. R. Harries, M.D. Lond.

MEDICAL SUPERINTENDENT, NORTH-EASTERN HOSPITAL (LONDON COUNTY COUNCIL)

LECTURE I

The problems of ward infection in their various aspects have within the last few months been debated both in the medical press,[1] and at meetings of medical societies.[2] Cross-infection is the bane of the staffs of both children's and fever hospitals, which are, to all intents and purposes, children's hospitals with a limited clinical field. At one time this clinical field was much more limited that is the case now that the large fever hospitals admit every variety of zymotic disease whether notifiable under the Infectious Diseases Notification Acts or not. The practical effect of this extension of the clinical field, from the medical and administrative points of view, has been the admission of large numbers of children of the younger age-groups suffering from such diseases as epidemic diarrhœa, whooping-cough, and measles.

Upon the consequences of extraneous infection it is unnecessary to dwell. They may be perilous to the individual child; they are always, in some degree, detrimental to the hospital. Long detention, especially if the cause be some superimposed infective process, may result in that complex of physical and psychical deterioration known as hospitalism. From the administrative standpoint, if wards are encumbered by long-stay patients or closed to new ones, the machinery of admission and discharge breaks down. The overhead charges remaining undiminished, the average cost of the patients treated rises. Equally important, the reputation of the individual institution or of institutions of its particular type inevitably if insensibly suffers.

Sources of Infection

The sources of infection of any type in children's wards may be classified as those: (1) *External to the hospital:* the household, creches, infant welfare centres, schools, and cinemas. (2) *External to the wards:* waiting rooms, casualty rooms, out-patient departments, or the receiving rooms of fever hospitals. Although obviously infective children are promptly segregated pending final disposal by the medical staff, some must escape notice until the damage is done. (3) *Within the wards:* children inadvertently admitted in the incubation period or prodromal stage of an acute infective condition; unrecognised *formes frustes;* carriers amongst either patients, staff, or visitors.

The extraneous infections which from time to time are so introduced fall into the following categories:—

A. Acute infections of the upper respiratory tract.—(1) Common specific infections, seven in number. Three of these (diphtheria, scarlet fever, and whooping-cough) are bacterial diseases; four (measles, rubella, mumps, and chicken-pox) are caused by viruses. (2) Non-specific, or rather unspecified infections of bacterial, viral, or combined origin. These unspecified infections may be superimposed upon those of the specific group, and are the chief causes of the major complications of two of them, namely, measles and whooping-cough.

B. Acute infections of the gastro-intestinal tract.—Discarding protozoal and helminthic infections, the intestinal infections fall into two groups: (1) Primary, those caused by the ingestion of organisms of the *B. coli*-paratyphoid-dysentery group, which are thus to a large extent specific infections; and (2) secondary. These are brought about by the ingestion of organisms derived from primary upper respiratory tract infections. Occasionally the intestinal infection may be primary and the respiratory tract infection secondary.

C. Cutaneous infections.—(1) Pyococcal, such as impetigo contagiosa and paronychia. (2) Parasitic, such as pediculosis, scabies, and the tineas.

D. Genito-urinary infections.—(1) Pyelitis and cystitis. (2) Vulvo-vaginitis: (*a*) venereal, and (*b*) non-venereal.

To a considerable extent the incidence of extraneous ward infections depends upon the type of work carried out in the institution, since this determines the age-groups of the children likely to be admitted and the length of time they remain. Age-grouping has clearly an important bearing upon the type of infection likely to be introduced and the chances of its dissemination among any particular ward population. The average length of stay governs the number of children admitted to the wards and thus the opportunities for the introduction and transference of infection.

If the average stay is short, implying a large number of admissions, it is impossible, as a general measure, to impose, for an adequate length of time, a preliminary period of quarantine or to undertake active immunisation, methods of general and specific prophylaxis which are feasible when the stay is likely to be long and the admissions, as a result, relatively few in number.

On a basis of length of stay hospitals for the treatment of children fall into three groups: (1) *General children's hospitals*, exemplified by the voluntary children's hospitals, which admit patients from the neonatal period up to the age of 12–14 years and retain them for three days or less up to two or three weeks at the longest. Many of these institutions have convalescent branches in the country. (2) *Special hospitals* for children suffering from orthopædic, tuberculous, or rheumatic conditions, and whose stay may extend over many months. (3) *Fever hospitals*, most of whose patients are children brought by ambulance either direct from their homes or from other institutions. The average length of stay exceeds a month.

Children's hospitals all possess isolation accommodation for use in emergency or for special cases, but, in this country, they are ordinarily concerned with the common fevers only as sources of infection to other patients. So far as possible, children suffering from the exanthemata are removed to fever hospitals. From the point of view of students this removal is in many ways unfortunate, since there is a tendency, when certain diseases are treated in special institutions, to regard the diseases themselves as something essentially different, instead of integral parts of general medicine.

Although fever hospitals are no longer seriously regarded as having any appreciable effect upon the incidence of the endemic fevers in the community, yet since every patient at the time of admission is deemed to be a potential source of infection, it is necessary to secure that, so far as possible, infectivity has ceased before discharge from hospital. Thus length of stay in the fever hospital is always determined by two factors: physical fitness and freedom from

* The Milroy lectures for 1935, delivered before the Royal College of Physicians of London.

infection. Depending upon the disease, either of these two states may precede the other by a considerable interval. Unfortunately there is a third factor, extraneous infection of any kind which, however trivial clinically, may, by prolonging infectivity, add very greatly to the average length of stay of patients.

The fever hospital must retain its patients until any potential source of infection whatever has been eliminated.

Within recent years the average length of stay of patients in many fever hospitals has been reduced very considerably, not only without detriment to, but to the great advantage of the patient and without any increase, but a decrease rather, in the return-case rate. Under the conditions obtaining in open wards, it may be said that the longer a child remains in the milieu of infection, the longer is he likely to remain, and the more difficult is it to secure bacteriological righteousness; in a word, he becomes hospitalised.

The chief reduction in the average days' stay has taken place in the case of scarlet fever. The traditional period of detention of six weeks has become for the uncomplicated case a month. This reduction has been brought about primarily by the disregard of desquamation, justified by the work of the Dicks, but also by the mild type of the disease, with a lessened incidence of complications. This incidence has been reduced still further, in the belief of many, by the use of scarlet fever antitoxin. Another factor which has operated to reduce the length of stay of scarlet fever patients has been the segregation and specialised treatment by otologists of patients suffering from middle-ear disease, at one time a most enduring and reputedly most infective complication.

Incidence of Infection in Children's Wards

SPECIFIC

Some recent figures of the incidence of the specific infectious diseases in the wards of the three different types of institution mentioned above may be given (1) During 1933 it is recorded [3] that among 3561 patients admitted to a large provincial children's hospital, there occurred 136 cases of infectious disease, or 3·8 per cent. of the admissions. Of these, 79 (58 per cent.) developed in hospital within their respective incubation periods and 41 (30 per cent.) were contracted in the wards. The origin of 16 cases was unknown. The two infections most frequently introduced in the incubation period were scarlet fever and measles. Being exceptionally well provided with isolation accommodation this hospital was able to retain over 40 per cent. of the patients who were unsuitable, for one reason or another, for removal. The opinion is expressed by the reporter that the figures would possibly have been worse but for the passive immunisation of contacts and for the existence of the isolation block.[2]

(2) Agassiz [4] reports that during ten years at the High Wood Hospital for tuberculous and rheumatic children of all ages up to fifteen years, amongst 7000 admissions, an average of 700 annually, the incidence of infectious diseases, diphtheria and scarlet fever mainly, ranged between 3 and 4 per cent. Of these cases, 25 per cent. occurred within the incubation period; 60 per cent. arose independently of any ascertained cause and "appeared to have been due to visitors." The small number of contact cases (15 per cent. of the total) Agassiz ascribes to the open-air methods of treatment.

(3) An analysis of the admissions to the North-Eastern Fever Hospital (661 beds) for twelve months (October 1933, to September, 1934) is summarised in Table I.

Although scarlet fever and measles were epidemic in London throughout the greater part of the period, chicken-pox was the disease chiefly responsible for the numerous cross-infections shown in Table I.

TABLE I.—*Admission to North-Eastern Fever Hospital in Twelve Months*

—	No.	Admissions per cent.
1. Total admissions	5712	—
2. Diagnosis doubtful (isolated)	639	11·1
3. Double infection on admission (isolated)	180	3·1
4. Incubating second disease and inadvertently admitted to open wards.	172	3·0
5. No. of cross-infections arising from 4 ..	221	3·8

As extraneous infections, the common fevers provide problems for the medical administrator rather than for the clinician. Chicken-pox, rubella, and mumps are negligible as causes of mortality, and although diphtheria, scarlet fever, whooping-cough, and measles are regarded as the four major specific infections of children, their relative importance as causes of mortality has declined very greatly during the past seventy years. Even if one of these four infections does make its appearance in a ward, passive immunisation of contacts is possible in the case of three of them—viz., diphtheria, scarlet fever and measles.

An analysis of 118 consecutive introductions of specific cross-infections into open wards of the North-Eastern Hospital is set out in Table II.

TABLE II.—*Cross-infections*

Disease.	No. of introductions.	No. of ward outbreaks	Remarks.
Diphtheria.	32	0	Schick test, swabbing and virulence tests, passive immunisation of contacts.
Scarlet fever.	36	0	Dick test, swabbing for carriers of hæmolytic streptococci, passive immunisation of contacts.
Measles.	7	3	Adult immune serum used for prevention or attenuation.
Rubella.	7	1	Outbreak among adolescents, not young children.
Whooping-cough.	23	0	—
Chicken-pox.	13	9	Two outbreaks followed admission of children who developed herpes zoster.

It should be added that in this hospital the space between bed-centres is not less than twelve feet, and, in some wards, fifteen feet. The factor of wall space in the dissemination of upper respiratory tract infections will be referred to again.

NON-SPECIFIC INFECTIONS

The incidence in children's wards of extraneous acute infections other than the specific fevers must ordinarily be stated in general terms, so varied is their ætiology and so diverse are their clinical manifestations. Hutinel [5] long ago recognised that the chief enemy of children in hospital was the streptococcus, and emphasised the gravity of the results of dissemination of respiratory, gastro-intestinal, and cutaneous infections. All are agreed as to the outstanding importance of infections of the upper respiratory tract, although, as Spence [6] remarks,

a respiratory or tonsillar infection which may be harmless in a five-year-old child may become very serious when transmitted to an adjacent infant.

Whatever their clinical results, the incidence of gastro-intestinal and cutaneous infections is lower by far and their control much easier than those of the respiratory tract.

Primary *gastro-intestinal* infections chiefly occur, as Paterson and Nabarro[7] have shown, amongst infants from three to nine months and, as Nabarro and Signy[8] have pointed out, attacks of gastro-enteritis and ileo-colitis are frequently dysenteric. They find that the Sonne strain is often responsible and this has been my own experience in recent years.

The introduction of diarrhœa or dysentery into a children's ward may be unavoidable, but save in those very exceptional cases where the source has been a infected milk-supply, dissemination is due to defective nursing technique.

From the point of view of dissemination the most troublesome *cutaneous* infections are pyococcal—e.g., impetigo contagiosa and infantile "eczema" so-called. Hutinel and Rivet[9] state that, failing rigorous aseptic precautions, a patch of infantile eczema may be the source of rapidly fatal broncho-pneumonia or septicæmia not only in the original patient but amongst other children in the ward. Schwartz[10] records that of 10 infants admitted to hospital for the treatment of infantile eczema four died of fulminating broncho-pneumonia and two of intestinal intoxication. Impetigo may be a cause of prolonged detention in a fever hospital. Unless the primary case is promptly isolated, carelessness in, for example, the matter of towels may result in transference to other children.

Owing largely to the work of the school medical service and its associated dermatologists, tinea tonsurans and scabies are now of comparatively rare occurence in the wards of fever hospitals where so many children are of school age. Early detection of microsporon ringworm is now easy by means of the mercury vapour lamp with Wood's glass which is available in all the infectious diseases hospitals of the London County Council.

Neither of the foregoing groups is to be compared in importance with extraneous infections of the upper respiratory tract. Brennemann[11] is of opinion that the major cause of hospitalism in infants to-day lies in infections of the upper respiratory tract and their complications and he thinks that a significant ætiological shift may have occurred from the gastro-intestinal to the respiratory tract with diarrhœa and indigestion as prominent symptoms common to both.

Parsons[12] considers that while the chief causes of death in the first half of the neonatal period are antenatal, in the second half they are mainly the result of postnatal infection particularly of the respiratory system, the source of which is to be found amongst those who have charge of the child, thus agreeing in the main with the conclusions of Cruickshank[13] as to the major causes of neonatal mortality. Bruce Young[14] notes the remarkable liability of the London slum infant under the age of three months to infection of various mucous membranes due to bad hygienic conditions. Diarrhœa and vomiting may be the most serious manifestation of the catarrhal syndrome and he thinks that sputum, possibly infected with the hæmolytic streptococcus, gives rise to an infective gastritis particularly in association with outbreaks of influenza in the winter months.

During the biennial epidemics many fever hospitals now admit large numbers of children suffering from measles who thus provide opportunities for study of the incidence and transference of concomitant upper respiratory tract infections. It must be emphasised, however, that infants under three months of age very rarely indeed contract measles and thus representatives of the youngest age-groups who occasion so much anxiety in general children's hospitals are but few in the measles wards of fever hospitals. Among infants between three and six months of age measles is frequently modified. All the gradations observable in measles artificially attenuated by human immune serum may be noted in attacks of the natural disease amongst this group who presumably still possess remnants of maternally transmitted passive immunity. After the age of six months, measles is usually unmodified. The high mortality of young children is caused, of course, not directly by the specific viral infection but by concomitant or superadded bacterial infections. The rôle of the virus in the common cold or measles is, according to Shibley, Mills, and Dochez[15] to cause initial inflammation and so facilitate the activities of the common coccal organisms always present in the naso-pharynx. The virus of measles rapidly dies; its presence in the blood in the early stages of the disease stimulates the production of specific antibodies which in a few days render the child solidly immune to a second attack. Unless the primary attack has been very greatly modified in the partially immune infant or too much attenuated by serum, second attacks of measles are, to say the least, extremely rare.

The medical administrative problem provided by the hospitalisation of measles is thus to reduce the dissemination of concomitant upper respiratory tract infections to a minimum.

On the continent the dire results of hospitalisation recorded by such observers as Wladimiroff[16] and Debré and Joannon[17] were recognised as being due mainly to overcrowded wards and the remedy was found in segregation and asepsis. Duncan Forbes[18] considers that so alarming is the mortality of measles patients in hospital, chiefly because of the rapid dissemination throughout the ward of organisms giving rise to fatal broncho-pneumonia, that unless they can be nursed in cubicles or under open-air conditions they will do better at home. The allowance of space in the wards upon which he founds his conclusions is not stated. Peters,[19] however, compared two groups of measles patients admitted from poor homes, a good many suffering from complications. Of 167 children who were nursed in a large ward of 26 beds with an allowance of 1400 cubic feet of air space and 96 square feet of floor space and were thus in his view "not overcrowded," 23 died, a case-mortality rate of approximately 14 per cent. A further 150 unselected patients were treated in an isolation ward containing four cubicles with four beds in each. Of these patients only 6 died, a case-mortality rate of 4 per cent.

That the treatment of measles patients in open wards is not necessarily associated with a high case-mortality is shown by the experience of the infectious diseases hospitals of the London County Council. In London, measles patients have been admitted to the fever hospitals formerly under the control of the Metropolitan Asylums Board, but now under that of its successor the London County Council, since 1910. Within recent years the successive epidemics of measles in London have been described by Sir Frederick Menzies in a series of special reports,[20] and Brincker[21] has discussed fully measles mortality with particular reference to London and to hospitalisation. The

numbers of measles patients admitted and the case-mortality in recent epidemics are indicated by the following figures:—

Epidemic.	Cases admitted.	Case-mortality per cent.
1927–28	8,729	7·0
1929–30	6,542	6·5
1931–32	11,526	5·6

The complete figures of the 1933–34 epidemic are not yet available, but to the North-Eastern Hospital alone during nine months (October, 1933, to June, 1934) 1603 measles patients up to the age of fifteen years were admitted. The case-mortality was 5 per cent. Table III. shows the cases divided into age-groups.

TABLE III.—*Measles Patients Admitted to the North-Eastern Hospital up to the Age of 15 Years during the Nine Months, October, 1933, and June, 1934*

Age-group.	Cases.	Deaths.	Case-mortality.
0–½	24	2	8·3 per cent.
½–1	200	25	12·5 ,,
–2	590	45	7·6 ,,
–3	333	6	1·8 ,,
–4	210	6	2·8 ,,
–5	107	2	1·8 ,,
5–10	127	—	—
10–15	12	—	—
	1603	86	5·0 ,,

The graphs which have been constructed from the quarterly figures summarised in Table III. show that neither in numbers nor in age-incidence were the admissions during the period October to December, 1933, comparable with those of the two succeeding quarters (Fig. 1). The epidemic had not gathered way and the children admitted did not fairly represent the normal age-incidence of the disease when epidemic. The graphs constructed for the two succeeding quarters, although of different dimensions, are almost identical in form and reflect, with considerable accuracy, the age-incidence of measles during that epidemic. The number of fatal cases in each age-group is shown in black; none occurred amongst children over five years old. The lessened incidence of broncho-pneumonia upon admission during the April–June quarter due purely to seasonal causes accounts for the low case-mortality rate which was only 4·3 per cent. as compared with 6·8 per cent. in the October-December quarter and 5·7 per cent. during January to March. As already stated, the case-mortality based upon the figures for the whole period of nine months was 5 per cent.

It may be, as Cameron [22] remarks of the 1931–32 epidemic, that the large number of patients admitted probably indicated less discrimination in the removal of patients to hospital. In any case, it is obvious that the great majority must, of necessity, have been nursed in ordinary wards; to provide cubicle accommodation upon such a scale is not feasible.

The wards in which these patients were nursed were of the simplest "temporary" pavilion type, abundantly cross-ventilated by windows looking out upon grass airing courts. The normal complement of a ward was twenty patients. At the height of the epidemic no more than two additional cots were permitted and these were placed in the centre of the ward in such a way that whether lateral or central in position 12 feet was always maintained between cot centres or cot heads. Children with broncho-pneumonia were nursed in the open wards throughout; those with otitis media or enteritis were nursed "in barrier" within the ward in the first instance, but, as soon as possible, were removed to special wards in the case of otitis media or to cubicles in the case of enteritis.

Experience showed that the aggregation of children with ear discharge in a special ward brought dangers of its own. It was observed that after each fresh admission there was a tendency for other discharging ears to light up; obviously they had become reinfected almost certainly by manual transference. In one such ward accumulation of these foci of hæmolytic streptococcal infection culminated in an outbreak of scarlet fever, there being no other discoverable source of infection. At the same time, it must be pointed out that the removal of children with discharging ears to special wards did reduce potential sources of infection in the ordinary measles ward.

The predominant concomitant organisms recovered in routine swabbings of the nose, throat, or discharges from the ear either upon admission or at later stages were hæmolytic streptococci. Even in the April–June quarter during which the incidence of respiratory complications upon admission showed the usual seasonal decline, 40 per cent. of all children admitted to one ward over a period of three months harboured, at the time of admission, hæmolytic streptococci in the upper respiratory tract, the organisms frequently being present in pure culture. Helmholz [23] in a special group of children suffering from upper respiratory tract infections recovered hæmolytic streptococci in 49 cases out of 98 (50 per cent.). He thinks that the mere presence of these organisms is of no significance. If, however, they form at least 10 per cent. of the flora they may be of ætiological importance.

Griffith [24] concludes that the invasion of a human

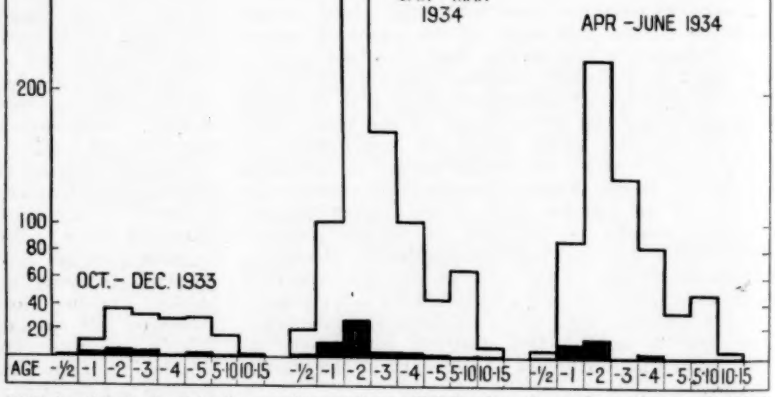

FIG. 1.—Graph showing the numbers and age distribution of measles patients admitted to the North-Eastern Hospital (L.C.C.) from October, 1933, to June, 1934. (Black columns indicate deaths.)

community by a hæmolytic streptococcus of known serological type and its spread amongst individuals forming the community may produce a whole series of clinically different diseases. In any measles ward foci from which upper respiratory tract infections may be disseminated by one means or another are obviously abundant. As the result of consecutive field swabbings of the same children at an interval of days, evidence was obtained that dissemination of hæmolytic streptococci had in fact occurred after admission, although the infection was not necessarily or ordinarily of sufficient magnitude to produce clinical effects. The uncomplicated case of measles must be regarded as, potentially, a minor focus of infection. The major foci are those children who are suffering from the complications of the disease. Their infectivity is greater, and since these are the patients who require most attention from the staff, the opportunities for spread by mediate means are more numerous.

The higher the proportion of children actually suffering from or developing complications at the time of admission the greater the risk of transference of infection to children admitted with uncomplicated attacks of measles. Although, without a doubt, some children develop complications late in the attack as the result of the extension of an upper respiratory tract infection which was present at the time of admission, many of the complications of late onset must be debited to hospitalisation; the upper respiratory tract has been infected or reinfected in the ward.

Incidence of Complications

The three main complications of measles are broncho-pneumonia, otitis media, and enteritis. As to whether, on admission, broncho-pneumonia was developing it was not always easy to be sure and we were frequently able to avail ourselves of the opinion of Dr. Helen Mackay who was at the time making independent investigations upon vitamins. Systematic examination upon admission of the drum-heads of all children in her wards enabled Dr. Hilda Linford to obtain early evidence of middle-ear infection which did not necessarily result in perforation and discharge, but, in what follows, otitis media is synonymous with otorrhœa. I have assumed that complications occurring during the first week of disease, which meant in practice that they were present upon admission or became evident within two or three days thereafter, might fairly be agreed to be beyond the control of the hospital, but that those appearing during the second week or later of the disease must be regarded as of true post-admission origin. An analysis of the incidence during nine months of the three main complications amongst 1464 patients up the age of five years has been made; over that age, complications were both clinically and statistically negligible. The numbers of children in each age-group are the same as those already given in Table III.

Summarised, the analysis shows that the incidence of *broncho-pneumonia* upon admission or within the ensuing two or three days was, at the ages up to five years, 12·3 per cent. with a case-fatality rate of 30 per cent. It is notable that no infant in the small group of 24 under six months old had broncho-pneumonia on admission or developed it subsequently.

Infants of from six to twelve months showed an incidence of 17·5 per cent. and the high fatality-rate of 51·4 per cent. Amongst children aged from one to two years the incidence (17·3 per cent.) was practically the same but the fatality-rate, 36·2 per cent., improved. Compared with those of children up to one year of age the incidence and fatality-rates of broncho-pneumonia amongst those of from two to five years old were both approximately halved.

Broncho-pneumonia of *late* onset (second week and onwards) occurred in 39 cases, or 2·6 per cent. of the admissions up to five years of age. The fatality-rate was 28 per cent. With the exception of one fatal case in a child of five years, the deaths occurred entirely amongst those aged from six months to two years.

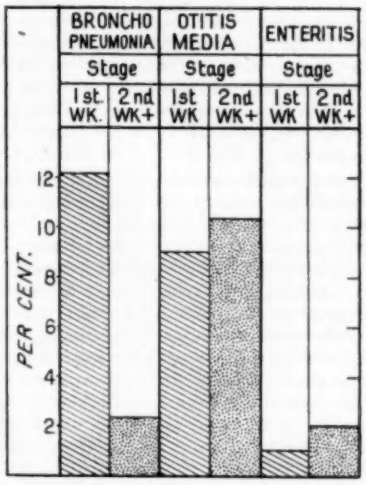

FIG. 2.—Percentage incidence of measles complications in first and subsequent weeks of the disease (North-Eastern Hospital).

Otitis media (otorrhoea) was present upon admission or occurred very shortly afterwards in 7 per cent. of all cases up to five years of age. Here the maximum incidence (20·8 per cent.) fell upon infants under six months old. It was 7 per cent. among those aged from six to twelve months; 9·3 per cent. from one to two years; 5·4 per cent. from two to three years and fell progressively from that age onwards to 2·8 per cent. among children from four to five years old. Otitis media of *late* (post admission) onset occurred in 8·6 per cent. of the whole series. In the various age-groups the incidence was as follows; under six months, 12·5 per cent.; six to twelve months, 11 per cent.; one to two years, 8·3 per cent.; two to three years, .6 per cent.; three to four years, 9·5 per cent.; four to five years, 10·3 per cent. The fluctuations were thus very much less in the different age-groups than was the case in otitis media of early onset and this is possibly suggestive.

There were no fatalities directly ascribable to ear complications in either the early or late group; nevertheless the clinical importance of this complication is obvious. Administratively, otitis media is the most important complication of measles. The frequency of its late occurrence is to the medical administrator a sensitive index of the character of the nursing in the ward. Some wards containing children of similiar age-distribution consistently produced many and others very few cases of late otitis media. The normal days' stay in hospital of children with uncomplicated measles was 14 days, but since it was our aim to release no child with a discharging ear or, if possible, with an unhealed drum head, it is clear that the average days' stay of all cases was increased considerably by the occurrence of this complication.

Enteritis, presumably secondary to an upper respiratory tract infection, occurred as an early complication in 1·5 per cent. of all children up to five years of age. The fatality-rate was 33·3 per cent. Except in infants under six months of age broncho-pneumonia was a usual concomitant in the fatal cases. The incidence was practically confined

to children up to the age of two years. Only 2 cases occurred above that age.

Enteritis of *late* onset occurred in 30 cases (2 per cent.). Four of these cases were actually Sonne dysentery; an explosive outbreak in the five-year group, the origin of which was not traced. Apart from these four cases, the incidence of enteritis late in the attack of measles was entirely confined to children of from six months to three years. There were no fatalities amongst the 30 cases. The percentage incidence, early and late, of these three complications is shown in Fig. 2.

It seems reasonable to conclude from the foregoing results that adequate ventilation and a space between bed or cot-centres of 12 feet are not in themselves sufficient to prevent the dissemination of upper respiratory tract infections amongst measles patients if patients suffering from broncho-pneumonia are nursed in the ward. If it be held that under such conditions broncho-pneumonia, as a late complication, results from the aerial transmission of infection, then it is clear that any lesser spacing must be inadequate. But ventilation and bed-spacing are not the only factors in limiting the dissemination of upper respiratory tract infections in measles wards; they do not directly influence the spread of infection from children suffering from otitis media. From such a focus spread is not aerial but manual.

The types of upper respiratory tract infections, their dissemination in wards and the means of control available it is proposed to discuss in the next lecture.

REFERENCES

1. THE LANCET, 1933, i., 370 (Leader). Correspondence passim.
2. Glover, J. A.: Trans. Med. Soc. Lond., 1934, lvii., 75 (Discussion).
3. Shrimpton, H. F.: Jour. Roy. San. Inst., 1934, liv., 595.
4. Agassiz, C. D. S.: Ann. Rep. Med. Off., L.C.C., 1930, vol. iv. (pt. iii.), 126.
5. Hutinel, V.: Le Syndrome Malin, Paris, 1927, p. 45.
6. Spence, J. C.: THE LANCET, 1933, i., 440.
7. Paterson, D., and Nabarro, D.: Ibid., 1922, ii., 321.
8. Nabarro, D., and Signy, A. G.: Arch. Dis. Child., 1932, vii., 327.
9. Hutinel, V., and Rivet, L.: Arch. de méd. des enf., 1909, xii., 1.
10. Schwartz, A. B.: Jour. of Pediat., 1934, iv., 172.
11. Brennemann, J.: Amer. Jour. Dis. Child., 1932, xliii., 577
12. Parsons, L. G.: THE LANCET, 1934, ii., 61.
13. Cruickshank, J. N.: Med. Research Counc., Spec. Rep. Ser. No. 145.
14. Young, J. Bruce: THE LANCET, 1933, i., 677.
15. Shibley, G. S., Mills, K. C., and Dochez, A. R.: Jour. Amer. Med. Assoc., 1930, xcv., 1553.
16. Wladimiroff, G. E.: Arch. f. Kinderheilk., 1912, lviii., 346.
17. Debré, R., and Joannon, P.: La Rougeole, Paris, 1926.
18. Forbes, D.: THE LANCET, 1933, ii., 253.
19. Peters, B. A.: Ann. Rep. Med. Off. Health for Bristol, 1930, p. 133.
20. Menzies, F. K.: Reps. of Med. Officer, L.C.C., on Measles Epidemics of 1927–28, 1929–30, and 1931–32.
21. Brincker, J. A. H.: Jour. Roy. San. Inst., 1932, liii., 108.
22. Cameron, A. F.: Rep. Med. Officer, L.C.C., Measles Epidemic 1931–32.
23. Helmholz, H. F.: Amer. Jour. Dis. Child., 1931, xlii., 328.
24. Griffith, F.: Bull. de l'Office Internat. d'hyg. publique, 1933, xxv., 2104.

SOUTHAMPTON MUNICIPAL HOSPITAL.—An extension to the nurses' home, providing room for another 40 nurses, has been opened at this hospital.

KENT AND CANTERBURY HOSPITAL.—The Duke of Kent has laid the foundation stone of the new building of this hospital, which has been associated with East Kent since 1793. The existing accommodation, provided by a building erected nearly 150 years ago, is now inadequate. For seven years efforts have been made to raise the £120,000 required for a new hospital and £30,000 remains to be collected. The building will be in the form of a triangle, the sides of which will face south, east and west and it will be constructed largely of concrete.

DEPRESSION OF MUSCLE TONUS

AS THE CAUSE OF ATELECTASIS, FAILURE OF THE CIRCULATION, AND OTHER POST-OPERATIVE SEQUELÆ

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TONUS is one of the essential conditions of life. More fundamentally than any other feature, tonus differentiates a living man from a corpse. Many of the reflexes depend upon the existence of tonus and are abolished with its loss. Posture, particularly the ability to stand erect, is largely dependent upon tonus. It is loss of tonus that renders an acutely ill patient incapable of getting out of bed, or even of sitting up without assistance. The strongest man, after undergoing an abdominal operation, is for a time unable even to lift his head from the pillow. His condition expresses an acute depression of tonus.

These facts are such commonplaces of daily clinical observation that their fundamental significance is generally unrealised. Accompanying or following any considerable depression of tonus, and in general correspondence with the degree of depression, other post-operative sequelæ also occur. The lungs are partially deflated, and some degree of atelectasis commonly develops. The circulation is more or less depressed. Metabolism, heat production, oxygen consumption, and carbon dioxide production are all diminished. And it is now becoming evident that for all of these conditions there is one general cause: depression of the tonus of the musculature of the body.

MUSCLE TONUS AND RESPIRATION

As Hess [1] has pointed out, the movements of breathing have less the character of voluntary contractions of the respiratory muscles than they have of alterations between higher and lower degrees of tonus in these muscles. This is particularly the case in the diaphragm. It is probable that from the first breath of life until after the last the diaphragm is never for an instant completely relaxed.

How completely the maintenance of the inflation of the lungs and the prevention of atelectasis are dependent upon the tonus of the thoracic muscles and diaphragm may be illustrated by the following observations, which were made some years ago during a study of various methods of manual artificial respiration.[2]

A cat was placed under moderate chloroform anæsthesia; its trachea was connected with a small spirometer; and the volume of air breathed in a minute was recorded. A fatal dose of chloroform was then quickly admistered; and respiration and the heart action stopped finally. When the trachea was again connected with the spirometer, and artificial respiration was again performed by squeezing the thorax and abdomen, a nearly normal volume of air was at first expelled from the lungs; and when the pressure upon the thorax was released, the same volume of air was drawn in again. This inspiration was entirely due to the elastic recoil of the thoracic muscles and diaphragm. But, as the centres in the nervous system failed under asphyxia, the elasticity of these muscles was gradually abolished; and the thorax was re-expanded less and less. A progressively diminishing volume of air was drawn in each time that compression was released, until after about ten minutes, when the body was entirely flaccid, there was no movement of air whatever in or out of the lungs. Compression of the thorax and abdomen by the operator's hands then caused no air to be expired,

for the chest was already deflated. And no air was drawn in; for the elastic recoil of the muscles was abolished with the entire loss of tonus.

This loss of tonus, abolition of elasticity and collapse of the chest are not mere laboratory observations on animals. A similar observation has been made by Dr. H. W. Haggard [3] on a man just dead from a heart attack. At first manual artificial respiration expelled air from the lungs, and the tonic elasticity of the chest drew air in again. Then as tonus decreased, the elastic recoil diminished until the thorax was deflated down to the size natural in a corpse.

A similar, if less extreme, observation was made twenty years ago upon normal men as part of a regular class exercise for medical students.[4] The manual prone pressure method of artificial respiration was applied by one student to another; and the volume of pulmonary ventilation thus induced was determined. This volume was found to be in all cases almost exactly the same as that of natural breathing. This observation was at first very surprising until its explanation was found. It means that in a normal man the respiratory centre regulates the tonus of the thoracic muscles and diaphragm with such precision that the chest expands to exactly the degree needed, alike after each normal expiration and each artificial compression. The pulmonary ventilation is thus adjusted not only to supply oxygen, but also to remove exactly the amount of carbon dioxide that the body produces: no more and no less. The subjects then performed voluntary forced breathing for a couple of minutes, so as to over-ventilate the lungs. Thereafter quite involuntarily they breathed subnormally for a time, or even stopped entirely. And when artificial respiration was applied during this period of apnœa, it was found that very little air was moved out of the chest and correspondingly little was drawn in.

These observations have recently been verified by X ray pictures [5] which show that in apnœa, after forced breathing, the position of the diaphragm is that of normal expiration, or even more deflation. Evidently the elasticity that normally keeps the thorax expanded is not a mere mechanical condition; it is rather a vital property under the control of the nervous system and particularly of the respiratory centre. Under normal conditions the chief stimulus to that centre is carbon dioxide. If that stimulus is diminished artificially by over-breathing, the tonus of the respiratory muscles is correspondingly diminished. In the far greater depression of tonus that follows long anæsthesia and extensive surgical operations, the chest cavity is so much decreased that the lungs are nearly deflated. A healthy man, even in expiration, has more than twice as much air in his lungs as a corpse.

In accord with these statements, observations upon patients by a number of observers [6] have shown that after surgical operations the vital capacity—that is, the maximum volume of air that a patient can inhale and exhale—may be decreased by as much as 50 per cent. In this decrease it is evident that the relaxation of the diaphragm plays a major part; for in X ray pictures its shadow may be nearly 5 cm. headward from its normal position.[7] This is as far as, or even farther than, the diaphragm moves under the most forcible voluntary expiration.

From these observations it is clear that, when the tonus of the body is diminished, the size of the thoracic cavity is likewise diminished. If the lungs are sufficiently deflated, some degree of atelectasis, at least in minute de-aerated areas, necessarily results: areas that are easily and quickly reinflated when the lungs are again expanded with the return of body tonus. This condition in its simple uncomplicated form has been well termed "collapse without symptoms." [8] When it is looked for, it has been found after more than 80 per cent. of all laparotomies. Doubtless the non-striated muscle-fibres in the walls of the airways also lose their tonus, like those of the alimentary canal, and such peristaltic movements [9] as they may normally have cease.

MASSIVE COLLAPSE

With the lungs partially deflated, it sometimes happens—and this occurrence is apparently one of pure chance—that mucus accumulates until one or another of the major airways is completely closed. In the lung or lobe which is thus occluded another development then sets in. The occluded gases are absorbed into the blood until the lobe or lung is completely collapsed. As one lung collapses, atmospheric pressure inflates the other lung. Hence, massive collapse is almost necessarily confined to one lung; for the collapse of one lung tends to expand the other.

The absorption of air from an occluded lung is not a physiological reaction, like the development of the atelectasis that generally precedes it. It is instead a purely physical process.[10] The sole causative condition is a plugged airway. An occluded lung is collapsed by diffusion of its gaseous contents in exactly the same manner that a lung, which has been collapsed by pneumothorax, is reinflated by the diffusion of air out of the pleural space. In both cases the gases—oxygen, carbon dioxide, and nitrogen—diffuse into the venous blood because the partial pressure of the gases in the occluded space are higher than in the blood. Blood pressure plays no part.

Relief of massive collapse requires removal of the plug, either naturally by coughing or artificially by bronchoscopy.[11] The return of tonus in the respiratory muscles—particularly the diaphragm—reinflates the lung by re-expanding the thorax. Deep breathing promotes coughing.

Normally the lungs drain freely through the airways and thus eliminate infection. In massive collapse, if the airways are not soon reopened, an occluded infection may develop and usually terminates fatally.[12] In such cases the sequence of events is: anæsthesia and operation, depressed muscle tonus, partial deflation of the lungs, blocking of a major airway, massive collapse, undrained infection, toxæmia, and death.

MUSCLE TONUS AND THE CIRCULATION

Depression of the circulation, like atelectasis and depression of general metabolism, is a common accompaniment of diminished muscle tonus. But it is only recently that it has become possible and logical to infer a causal relation between muscle tonus and the circulation. In this relation the circulation presents two closely related problems: one the converse of the other. One is the problem of how in health the normal circulation is maintained and its total flow adjusted to the varying needs of the body. The other is the problem of how in illness and vital depression the circulation fails.

Beside the heart and the vasomotor mechanism there is a third major factor in the circulation.[13] It is the factor that normally determines the volume of blood returning to the heart through the veins. It is now generally recognised that the depression

of the circulation that follows surgical operations or illness is not due primarily to weakening of the heart, nor to failure of the vasomotor nervous control of the blood-vessels. It is due rather to a gradual decrease in the volume of blood returning to the heart—that is, to the progressive depression and final failure of the venopressor mechanism.

Every movement of the limbs and every contraction of the abdominal muscles tends to promote the flow of blood through the venous system back to the heart. This feature of the venopressor mechanism has indeed long been recognised. But clear evidence has only recently been developed that in the healthy body, even during complete bodily rest, the tonic contractions of the muscles maintain continually a pressure within the tissues sufficient to send a continuous stream of blood through the veins to the heart.[14] This pressure between the fibres of a muscle under tension arises in much the same way that pressure between the strands of a rope is produced by a longitudinal pull upon the rope. The pressure amounts, even in a relaxed but still tonic muscle, to 50–70 mm. of water column. When muscle tonus is increased, the pressure is higher, up to 90 mm. or more. When tonus is abolished, as it is in a moribund man or animal, the internal pressure is also abolished; and in a dead body prior to rigor mortis it falls to zero.

The method of measuring this tissue pressure is to thrust a hypodermic needle into the middle of a muscle, usually the biceps, and to determine the pressure required to induce a minute amount of saline to run in. During bodily rest this intramuscular pressure is too small to have any considerable direct effect upon arterial blood pressure, or to oppose appreciably the flow of blood into a muscle. But even in a relaxed muscle there is normally sufficient tonus to maintain the venous outflow from the muscle. It is one of the first principles of hydraulics that fluid tends to flow from a place of higher pressure to one of lower pressure; and the greater the difference of pressure the more rapid the flow. Correspondingly the higher the intra-tissue pressure the larger and more rapid the volume of the venous return to the heart; and the intra-tissue pressure is due to the tonus of the musculature of the body, skeletal and visceral.

These statements do not deny or question the correctness of the opinion that the entire energy of the circulation during bodily rest is due to the "push from behind" imparted to the blood by the left heart. But in order to push the blood not only from the heart to the tissues, but also onward from the tissues back through the veins to the right heart, it is essential that some of the force imparted by the left heart shall be conserved until the circuit is complete. And so long as the tissues of the body have tonus, elasticity, and an internal pressure, a part of the force imparted to the blood by the heart is retained by the blood in the vessels within and beneath the muscles. It is this force—in addition to the tonus of the capillaries [15]—that presses the blood on into the veins and thus supplies the right heart and supports the circulation. On the other hand, when muscle tonus is depressed or fails, the entire force of arterial pressure is lost in the flaccid tissues and the blood stagnates there, instead of flowing on through the veins back to the heart.

Nor is this all. When the depression of muscular tonus permits the thorax to diminish in size and the lungs to collapse toward atelectasis, another handicap is imposed upon the circulation. The negative pressure of the thorax decreases. So long as the thorax and lungs are normally expanded, this negative pressure is one of the main accessory factors aiding in drawing blood into the right heart. When the tonus of the body is diminished, not only is the positive pressure in the body as a whole diminished correspondingly, but the negative pressure of the thorax also. The effective venous pressure,[16] which is the sum of these pressures, is thus doubly decreased.

The part played by general body tonus is distinct from that of vasomotor tonus. Vasomotor tonus determines the height of arterial pressure. General body tonus determines the volume of the venous return to the heart and thus the volume of the output of the heart.[17] In progressive vital depression it is general muscular tonus that fails first. The venous return to the heart is thus diminished. It is only after the volume of the circulation has been thus greatly decreased that arterial pressure falls. Almost to the last the vasomotor mechanism, instead of failing, strives by an extreme constriction of the arteries and arterioles to maintain arterial pressure in spite of the diminishing output of the heart; then it too fails.[18] This in brief is the process of circulatory failure leading to the large majority of all deaths.

MUSCLE TONUS AND METABOLISM

The maintenance of body temperature depends upon two forms of regulation: physical and chemical. Physical regulation is effected mainly through the evaporation of moisture from the lungs and skin and through the cutaneous vasomotor adjustments. Chemical regulation is largely effected through variations in the process of combustion which affords the energy for muscular contraction and tonus. And the consumption of oxygen and production of carbon dioxide are the chemical correlatives of this liberation of energy. Muscular tonus is thus a prime factor in the chemical regulation of body temperature.

Normally, it is essential that the volume of air breathed to supply oxygen and eliminate carbon dioxide, and the volume of blood circulated to transport these gases shall be adjusted to the amount of energy liberated in the body and to the amount of material oxidised. It now becomes evident that tonus largely determines all of these processes and adjustments: the intensity of metabolism, the amount of oxygen consumed and carbon dioxide produced, the volume of blood put into active circulation through the venopressor mechanism, and the volume of respiration that will afford the amount of ventilation required for the blood as it passes through the lungs.

On the other hand, when tonus is depressed, all of these functions are depressed and thrown out of adjustment. Metabolism and heat production are diminished. Less oxygen is consumed and less carbon dioxide is produced. The venous return is decreased and with it also the output of the heart. Respiration is depressed and the lungs are partially deflated.

FACTORS INFLUENCING TONUS

The tonus of striated muscles is controlled through the motor nerve-fibres from anterior horn cells in the spinal cord. Upon these cells there are many influences: influences from the cerebrum, cerebellum, and basal ganglia—particularly the respiratory centre; influences through afferent nerves from the skin, and from the muscles themselves; and chemical influences from endocrine glands, and by the gases and alkali of the blood.

Among the influences inducing depression of tonus are anxiety, anæsthesia, particularly spinal anæs-

thesia, or unskilful inhalational anæsthesia and excessive relaxation—and surgical trauma.

Tonus returns fully only with recovery of vitality and health; but it is increased temporarily by frequent change of position—even turning over in bed—by strychnine and by inhalation of carbon dioxide.[19]

CONCLUSIONS

The main cause of all the depressions of function after anæsthesia and surgical operations lies in the decreased tonus of the musculature of the body.

Decreased tonus of the thoracic muscles and diaphragm induces deflation of the lungs. In extreme deflation a bronchus may become plugged with mucus. Absorption of the occluded air then produces massive collapse.

Decreased tonus of the muscles of the limbs and abdomen permits the blood to stagnate in the tissues. The venous return to the right heart is thus diminished, and the circulation is correspondingly depressed.

Decreased tonus of all the muscles of the body involves a decrease of metabolism, heat production, oxygen consumption, and carbon dioxide production. The suboxidation and acapnia may then induce further depression of many functions.

REFERENCES

1. Hess, W. R.: Pflügers Arch. f. d. ges. Physiol., 1930, ccxxvi., 198; Also Die Regulierung der Atmung, Leipzig, 1931.
2. Report of the Commission on Resuscitation from Electric Shock, National Electric Light Association, New York, 1913.
   Report of the Committee on Resuscitation from Mine Gases, Technical Paper 77, U.S. Bureau of Mines, Washington, D.C., 1914.
   Liljestrand, G., Wallin, G., and Nilsson, J. O.: Skand. Arch. f. Physiol., 1913, xxix., 198.
3. Haggard, H. W.: Personal communication.
4. Henderson, Yandell: Jour. Amer. Med. Assoc., 1914, lxvii., 1133.
5. Bohan, M. K., Childs, S. B., Jr., Hamlin, H., and Henderson, Y.: X Ray Observations, Department of Health, Yale University. Unpublished.
6. Churchill, E. D., and McNeil, D.: Surg., Gyn., Obst., 1927, xliv., 483.
   Head, J. R.: Boston Med. and Surg. Jour., 1927, cxcvii., 83.
   Sise, L. F., Mason, R. L., and Bogan, I. K.: Anæsth. and Analg., 1928, vii., 187.
   Powers, J. H.: Arch. of Surg., 1928, xvii., 304.
   Brunn, H., and Brill, S.: Ann. of Surg., 1930, xcii., 801.
7. Pasteur, W.: THE LANCET, 1908, ii., 1351.
   Briscoe, J. C.: Quart. Jour. Med., 1920, xiii., 293.
   Muller, G. P., Overholt, R. H., and Pendergrass, E. P.: (Discussion by A. E. Graham), Arch. of Surg., 1929, xix., 1322.
8. Beecher, H. K.: Jour. Clin. Invest., 1933, xii., 651.
9. Macklin, C. C.: Physiol. Reviews, 1929, ix., 1.
   Henderson, Y.: Jour. Amer. Med. Assoc., 1929, xciii., 96.
10. Coryllos, P. N., and Birnbaum, G. L.: Arch. of Surg., 1930, xxi., 1214.
    Henderson, Y., and Henderson, M. C.: Arch. Internal Med., 1932, xlix., 88.
11. Jackson, C., and Lee, W. E.: Ann. of Surg., 1925, lxxxii., 364.
    Harrington, S. W.: Ibid., 1927, lxxxv., 152.
12. Coryllos, P. N., and Birnbaum, G. L.: Ibid., 1928, xvi., 501. Amer. Jour. Roentgenol., 1929, xxii., 401.
    Henderson, Y., Haggard, H. W., Coryllos, P. N., Birbaum, G. L., and Radloff, E. M.: Arch. Internal Med., 1930, xlv., 72.
13. Henderson, Y., Oughterson, A. W., Greenberg, L. A., and Searle, C. P.: Science, 1934, lxxix., 508.
14. Henderson, Y.: Jour. Amer. Med. Assoc., 1931, xcvii., 1265.
    Henderson, Y., Oughterson, A. W., Greenberg, L. A., and Searle, C. P.: Amer. Jour. Physiol. (To be published.)
15. Krogh, A.: The Anatomy and Physiology of Capillaries, Yale University Press, 1922.
16. Henderson, Y., and Barringer, T. B.: Amer. Jour. Physiol., 1913, xxxi., 353.
17. Henderson, Y., and Harvey, S. C.: Ibid., 1918, xlvi., 533.
18. Henderson, Y.: Ibid., 1910, xxvii., 152.
19. Henderson, Y.: Brit. Med. Jour., 1906, ii., 1872.
    Bull. Johns Hopkins Hosp., 1910, xxi., 235.
    Henderson, Y., Haggard, H. W., and Coburn, R. C.: Jour. Amer. Med. Assoc., 1921, lxxvi., 672.
    Scott, W. J. M., and Cutler, E. C.: Ibid., 1928, xc., 1759.
    Doppler, Karl: Deut. Zeits. f. Chir., 1929, ccxix., 308.

TORSION OF THE SPERMATIC CORD IN INFANCY

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TORSION of the spermatic cord is uncommon and usually occurs during adolescence and early adult life. It has seldom been recorded in an infant.

REPORT OF CASE

A. B., aged 17 weeks, was admitted to the Blackburn Royal Infirmary as a case of strangulated inguinal hernia on Nov. 19th, 1933. At the age of 2 weeks a swelling had been observed in the left groin; this was diagnosed as a maldescended testicle and no treatment was advised. The child was always fretful and undernourished, and the doctor advised surgical treatment, thinking that a coincident inguinal hernia might be the cause of the trouble. This advice, however, was rejected a fortnight before admission. On the day before coming into hospital the child cried almost continuously and vomited once. Next morning the mother noticed that the swelling appeared larger and, as the child seemed to be in pain and had vomited twice, consented to its removal to hospital. The bowels had been opened regularly each day and the vomitus had consisted of curdled milk.

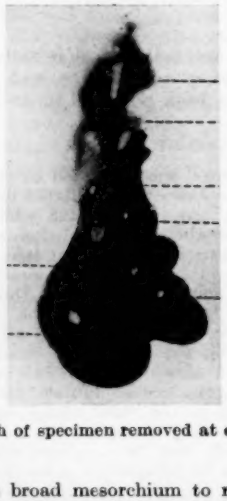
On admission at 6 P.M. the temperature was 100·6° F. and the pulse-rate 140; the child was screaming with pain. Nutrition was rather poor; the tongue was clean and moist, and the abdomen was not distended or tender. A swelling was visible in the left inguinal canal, about 1½ in. long and 1 in. in diameter. The overlying skin was flushed and there was slight œdema over the external abdominal ring. Palpation of the swelling was obviously painful and disclosed a hard fixed mass which did not fluctuate and which was out of reach of the finger inserted into the external abdominal ring. There was no impulse on straining and the percussion note was dull. The testicle and scrotum were normal on the right side but the left side of the scrotum was small and no testicle was found.

A *diagnosis* of torsion of the left testicle was made on the following grounds: (1) The symptoms and general condition of the infant were not sufficiently severe to be compatible with a strangulation of 36 hours' duration. (2) The swelling was harder and more irregular than the usual strangulated hernia and it seemed unlikely that there could be a strangulation of the omentum in a child so poorly nourished. (3) The doctor had detected a maldescended testicle in the inguinal canal some months previously. (4) There were no septic foci to account for the presence of enlarged glands and clinical evidence was against an adenitis.

Operation.—Permission having been obtained for an orchidectomy the inguinal canal was exposed under ether anæsthesia. A bluish-black mass was seen in the upper part of the inguinal canal which, on dissection, was found to consist of a distended tunic vaginalis filled with blood-stained fluid. The testicle and epididymis were plum-coloured, and the spermatic cord was rotated through one and a half turns from without inwards; the highest part of the torsion was just distal to the attachment of the tunica vaginalis to the cord. Detorsion was impossible and hot packs failed to restore circulation; accordingly orchidectomy was performed. The lower pole of the tunica vaginalis was connected to the fundus of the scrotum by a thin ribbon-like band which was thought to represent the gubernaculum. A small funicular hernial sac was present but its orifice barely admitted a probe. The child made a normal recovery and was discharged on the tenth day.

Dissection of the specimen.—The veins of the cord were thrombosed above the level of the attachment of tunica vaginalis and detorsion of the cord resulted in tearing of

these veins. The tunica vaginalis was enlarged and reached nearly one inch above the upper part of the epididymis so that the latter and the testis were suspended within the vaginal cavity. The testis and epididymis were engorged and were attached to each other only by a broad band running from the globus major to the upper pole of the testicle. The vessels of the cord bifur-



Photograph of specimen removed at operation. (× 2.)

cated in this broad mesorchium to reach the two parts of the organ. Microscopical examination showed extensive interstitial hæmorrhage into the testis and epididymis; the seminiferous tubules were solid cords of cells in the centre of which there was some degree of necrosis.

ÆTIOLOGY OF TORSION OF THE TESTICLE

Scudder [1] in 1901 found 31 cases on record, 2 of these being in babies of under one year of age. Donovan,[2] in 1930, recorded 3 cases of his own in infancy and found a further 163 in the literature, in 13 of which the age was less than a year. Johnson,[3] in 1931, reported 2 cases in adolescence, and in the same year Kenneth Walker [4] described a case of bilateral torsion in a boy of 15. Muschat [5] reported 2 adolescent cases in 1931 and discussed the ætiology. Henderson and Foisie [6] reported a case of torsion of a maldescended testicle in a baby of ten months old in which a large congenital hydrocele in the opposite side of the scrotum had caused discomfort and had been relieved by tapping two months previously. The youngest case on record is that of Taylor [7] in which the nurse noticed a swelling and discoloration of the scrotum 4 hours after the birth of the infant. At operation, 48 hours later, a necrotic testicle was removed and the child lived.

Two types of torsion are described: (1) *supravaginal*, in which the whole tunica vaginalis with its contents rotates within the scrotum; and (2) *intravaginal*, in which the testis and epididymis rotate within the cavity of the tunica vaginalis. The former type can occur only after rupture of the areolar tissue binding the tunica to the scrotal wall with tearing of the gubernaculum; the existence of this type is doubted by Muschat, and Young [8] states that the condition could be caused only by severe external violence. Intravaginal torsion of the cord may occur in normally descended or ectopic testicles, but Thorek [9] found that 47 per cent. of the recorded cases were in maldescended organs. The normal testis cannot rotate owing to the firm attachment of the mesorchium to the postero-internal wall of the scrotum.

Farr [10] considered that the predisposing factors were: (1) A free-lying testis with an abnormally long mesorchium. (2) Abnormality of the relative size or position of the testis and epididymis. (3) Enlargement of the tunica vaginalis. (4) Lengthening or other abnormality of the spermatic cord. Broadening of the cord was considered to be a factor by Lauenstein,[11] and Kocher [12] noted that there was often a bifurcation of the vessels of the cord.

Muschat studied the problem by making serial sections of the cord and the cremaster muscle and then constructing models from the sections.

It was found that, in cases of torsion, the cremaster muscle wound spirally around the cord as far as the testicle, instead of looping down over the outer side of the tunica vaginalis as in the normal specimens. He also found that the tunica vaginalis was attached higher along the cord and was enlarged, thus allowing the testis and epididymis to invaginate the sac from its upper pole. The testicle and epididymis were surrounded by the tunica and hung into its cavity "like the clapper in a bell," instead of being covered only on the antero-external surface as in normal cases. There remained, therefore, a freely suspended testicle attached by an elongated intravaginal portion of the spermatic cord to the upper part of a capacious tunica vaginalis. Contraction of the cremaster muscle would be sufficient to initiate rotation in the unstable testicle.

From these observations the predisposing factors were held to be: (1) high attachment of the tunica vaginalis along the cord; (2) testis and adnexa hang in the cavity of the tunica "like the clapper in a bell"; (3) the cremaster muscle winds spirally round the cord and can thus initiate rotation if the other factors are present.

Johnson has described cases in which a fall or coitus have been the cause of the torsion. Farr considered that the torsion might result from increased abdominal pressure in an effort, by nature, to remedy the imperfect descent of the testicle. Murray,[13] after reviewing the literature, suggested that many cases of acute strangulation had suffered from repeated attacks of recurrent, subacute torsion which had spontaneously been corrected and thus considered that most cases of torsion were of congenital origin. The testicle had many opportunities of undergoing torsion in its descent, and Murray suggested that the torsion was present at birth but that the onset of acute symptoms was due to vascular congestion associated with the period of puberty or with strain. The occurrence of torsion during sleep, as recorded in so many cases, appears to negative this view.

PATHOLOGICAL RESULTS OF THE TORSION

Putzu [14] found experimentally that torsion of 360° for 30 hours caused necrosis of the seminiferous tubules, and clinical evidence supports this finding. Venous congestion and thrombosis follow upon the damage to the thin-walled veins; exudation into the substance of the organs and into the vaginal cavity increases the stasis in the vessels; capillary hæmorrhages occur, and the delicate cells of the seminiferous tubules undergo irreparable necrosis after an ischæmia lasting about thirty hours. Rarely a superadded septic infection of the necrosed organ occurs, and may lead to peritonitis if there is an adjacent patent funicular process. Clute [15] grouped cases into (*a*) acute complete torsion and (*b*) recurrent subacute torsion. In the milder cases, about 14 per cent. of acute complete torsion, in which the vascular obstruction is not sufficient to cause gangrene he found that atrophy of the testicle occurred. Many

patients have learned to correct by manipulation the recurrent subacute torsion of the testicle.

DIAGNOSIS

Constantin and Dalous[16] collected 53 cases in which a correct diagnosis had been made in 3; Thorek reports 24 cases of torsion which had been diagnosed as strangulated hernia; 15 of these were cases of ectopic testis. Most cases are diagnosed as strangulated hernia, but the degree of shock and the intensity of the gastro-intestinal symptoms are less in torsion and there is never absolute constipation. Scudder considers that in a doubtful case the absence of the testicle from the scrotum combined with an empty external abdominal ring should lead to a diagnosis of torsion rather than strangulation. Vanverts[17] states that differentiation is impossible between torsion of an ectopic testicle and strangulation of omentum in an inguinal hernia.

Donovan found that in infancy torsion of the cord may be apparently symptomless; in 2 of his cases there was no evidence of pain or vomiting, and the infants were brought for treatment because of the detection of a lump in the groin.

Differentiation has to be made, in cases of scrotal testis, from acute epididymo-orchitis, but in these the onset is more gradual and there may be confirmatory evidence such as urethral discharge, prostatitis, or a history of mumps. Inguinal adenitis may simulate torsion of an ectopic testis but can be excluded by the mode of onset and the presence of a septic focus.

TREATMENT

Detorsion should always be attempted unless there is obvious necrosis, and the application of hot, moist pads may assist in assessing the viability of the organs after untwisting. Donovan holds that orchidectomy will be necessary in all cases after torsion of thirty hours. If detorsion is possible some method of fixation is indicated to prevent recurrence, but it is doubtful if the performance of the Thorek[14] operation for fixation into the thigh would be justifiable in these acute cases. Kenneth Walker advocates exploration of the opposite testis to remedy any predisposing factors in that organ.

No fatal cases are on record.

I desire to thank Dr. Keith Cumming for permission to report this case.

BIBLIOGRAPHY

1. Scudder, C. E.: Ann. of Surg., 1901, xxxiv., 244.
2. Donovan, E. J.: Ibid., 1930, xcii., 405.
3. Johnson, H. A.: New Eng. Jour. Med., 1931, cciv., 899.
4. Walker, K. M.: Brit. Jour. Urol., 1931, iii., 436.
5. Muschat, M.: Surg., Gyn., and Obst., 1932, liv., 758.
6. Henderson, F. F., and Foisie, P. S.: New Eng. Jour. Med., 1934, 211, 493.
7. Taylor, M. R.: Brit. Med. Jour., 1897, i., 458.
8. Young, H. H., and Davis, D. M.: Practice of Urology, Philadelphia, 1927, vol. ii., 164.
9. Thorek, M.: Surgical Errors and Safeguards, Philadelphia, 1932.
10. Farr, C. E.: Ann. of Surg., 1913, lviii., 838.
11. Lauenstein, C.: Sammlung klinischen Vortrage, Leipzig, 1894, No. 92.
12. Kocher, T.: Deutsche Chirurgie, Stuttgart, 1887, p. 585.
13. Murray, R. W.: Brit. Med. Jour., 1912, ii., 7.
14. Putzu, F.: Clinica Chir. (Milan), 1912, xx., 1295.
15. Clute, H. M.: Boston Med. and Surg. Jour., 1919, clxxxi., 231.
16. Dalous, E., and Constantin, E.: Ann. des mal. des org. genito-urin., 1904, xxii., 1255.
17. Vanverts, J.: Ibid., p. 401.
18. Thorek, M.: Ann. of Surg., 1931, xciv., 97.

THE SQUINT TRAINING CLINIC OF THE L.C.C.

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The squint training clinic was started in connexion with the ophthalmic clinic of the Children's Hospital in Harrow Road in 1915. It was up-hill work because the parents did not understand that the vision of the squinting eye became lost, and, by long association, they did not realise how great was the disfigurement. The treatment too was new to them, and they disliked intensely to have the good eye covered. Few people, even among medical men, realise that marked internal squint, even with good sight in that eye, means that the squinter is in the position of a one-eyed man as regards his field of vision, which makes it dangerous for him to be in any occupation where accidents are liable to happen. I had to spend a long time explaining to each parent, and often when I had succeeded with the mother, the father refused permission for treatment. In 1917, however, the L.C.C. took over the clinic and I was able to devote myself entirely to these cases and the work went on apace as it became more generally known in the neighbourhood.

The cases are nearly all convergent concomitant squint, constant or alternating. I do not like the term "convergent," which implies a coöperation between the two eyes, whereas the exact opposite is the case. In cases of squint the power of convergence and of divergence is either absent (as in alternating squint) or deficient in varying degrees.

If one could coin a word, "abvergence" would more accurately describe the action of avoiding the object seen by the good eye. The term convergence should be confined to the action of the two eyes focussing the same object at the same instant, and in the following pages will be used in that meaning.

Children are very rarely born with a squint. The earliest in my own experience was a child brought to me at 3 months old, who was said to have squinted as soon as she had opened her eyes. The most common age is 3½ to 4 years old, but squint may occur at any age from early infancy to 6 years old. Squint acquired after this age is slight and as a rule is easily cured.

As soon as a child is seen to squint, he should be taken in hand at once, and attempts to restore the sight of the squinting eye should be made without delay. The earlier the squint occurs the greater is the loss of sight. Babies of the tenderest age can wear spectacles with safety, and after wearing them have been known to resent, in the only way open to them, any neglect in putting them on. No child is too young for treatment for the restoration of sight, and in this clinic mothers of squinting children are allowed to bring younger ones with the same defect as soon as it is seen without waiting until the child attains school age.

Before beginning treatment the willing coöperation of the child must be obtained as well as that of the parent. With this aim the mother is asked to listen while an explanation is made to the child in simple language of the meaning of a squinting eye: the loss of sight, the disfigurement, the disability it causes in later life.

His interest and ambition are awakened by telling him that unless the sight is restored and the eye becomes straight he will never be able to enter the railways, become an engineer or work in a machine-shop, drive a train,

a car, or an aeroplane with safety, nor be able to become a policeman or a soldier; and in order to stimulate his present interest, he is promised a prize when the eye can read a certain line on the board. One must also show sympathy with him and praise his bravery and manliness in submitting to the discomfort of having to wear a patch, and let him realise that one is just as anxious to take it off as he is. At each visit he is commended for improvement, and if after a certain time has elapsed and none has taken place, searching questions are put as to when he "peeps" or removes the glasses. He is kindly and reproachfully reproved, reminded of the prize awaiting him, and as a rule this handling succeeds and he becomes fond of the trainer and tries to please.

Treatment

The basis of the treatment is that described by C. Worth in his book on squint. It consists of two different parts: (1) the restoration of vision to the squinting eye; (2) training the eyes to focus on the same object at the same instant.

RESTORATION OF VISION TO SQUINTING EYE.

The errors of refraction are most carefully corrected.

Where there is any loss of vision in the squinting eye, the good eye is covered by a disc of paper gummed over the lens of the spectacle, extending above to the eyebrows and across the bridge of the nose. It is unwise to cover the extreme outer field of the good eye. The child needs peripheral vision on that side in order to avoid knocking against objects he is passing. The paper projects beyond the lens so that it is difficult for him to turn his head for the use of that eye in direct vision. The complete covers supplied by opticians and advised by some surgeons are dangerous, as well as depressing to the spirit of the child.

The paper is renewed every week and the vision taken until the sight reaches 6/9. It is then replaced by a film of shaving soap rubbed over the lens. By this time the vision of the squinting eye is so useful that there is little inclination on the part of the child to use the good eye. The soap is kept on until the squinting eye can "fix"—i.e., the patient can use that eye to focus an object with both eyes uncovered and *without spectacles*. The question of fixing is more important than that of vision, for in some cases of bad scotoma the vision never arrives at 6/6, and if the good eye is kept covered beyond the stage of fixation the vision of the good eye may deteriorate, and actually become the squinting one, while the other may still not improve to normal. A girl of 5 who had so little vision in the squinting eye that she could not see fingers at the distance of one foot, and a very large central scotoma, had the sight restored until that eye apparently became the fixing one at will, the other going into the corner. The child was most unreliable, and it was difficult to find out her distant vision but she could read Ji. It is probable that the scotoma has not entirely gone and that she uses a portion of the retina at the inner side of the yellow spot. If further covering were done now, the good eye would lose its vision without corresponding improvement in the other.

Some ophthalmic surgeons claim that training should begin when vision is so much as 6/12, and that the sight is thus more quickly restored. I have not found this to be so *unless the eye can also fix.* When using the amblyoscope the weaker eye loses the object and the child carries on only with the good eye. This is the cause of many cases of faulty projection which rarely occurs unless the sight of the bad eye is less than that of the good one, or cannot fix; or again in cases of bad alternating squint.

Moreover if training is carried out when there is a loss of one image (constantly in the same eye) this image has to be continually illuminated more brightly than the other, involving the use of artificial light, which is quite unnecessary if the standard of a "fixing" eye is adhered to.

Certain cases of children of 10 and upward who are unable to spend the time from lessons in regaining the sight of the eye may lose the squint by training to the point of absolute cure, but the vision does not improve in the same ratio. Two little girls, twins of 11, with marked internal squint and vision of 6/60 and 6/36 respectively, kept the patches over the good eyes until the bad ones obtained 6/24 and 6/18 respectively. Then they felt unable to continue on account of their school work. The patches were removed and the children have had training for several months. There is now no squint either with or without glasses, but the vision of the first girl is now only 6/24, that of the second 6/12.

Children with central scotoma and vision very much less than 6/60 cannot be treated with much success after they are 6 years old. They improve, and if it were possible to ensure that the treatment was being really carried out, I believe one could gain success with children older than this. But it is a very trying and long treatment for a child of that age, and would require so much supervision that it is impossible with the children of the clinic.

Some surgeons allow the child to wear the patch only half the day. I have found this to be almost useless. The great difficulty is to get the child used to wearing it; if he does this constantly he becomes accustomed to it and ceases to fret; but when it is removed every day, a constantly repeated irritation occurs, and the temptation to "peep" proves irresistible. Moreover the necessity for wearing it is discounted, not only by the child, but also by the parents and teacher who become impatient of the much more prolonged treatment.

Where there is no scotoma and a vision of 6/60 it is amazing how much children improve up to the age of 9 or even 10 years of age.

I have just discharged a boy who was 9 years and 10 months old with a vision of 6/60 when he first came. He arrived at 6/6 with entire disappearance of the squint in ten months. Another boy of 9 improved from 6/60 to 6/6 in six months.

Training should be thoroughly done even if the squint has disappeared in these cases, because the habit of using one eye only is so ingrained that they must be taught to use the eyes together, and frequent tests of the vision must be taken in case of loss. The custom of the clinic is to "soap" between the weekly training until the habit is broken.

Time taken to restore sight to the defective eye.—During the first seven years of the clinic children with no central vision and seeing less than 6/60 took on an average 21 months to restore vision to normal. One case took 3 years and the shortest time was 6 months.

In the later years of the clinic this average was reduced to 18 months, an improvement I put down to the greater knowledge of the parents of the treatment, and perhaps also to my own added experience. The average for children with 6/60 or better vision has been as follows:

Vision.	Average time.	Vision.	Average time.
6/60	13 months.	6/24	9 months.
6/36	12 ,,	6/18	7 ,,

Those with better initial vision were improved to normal in correspondingly less time.

There are no failures with this treatment provided it is well carried out, and of course with due regard to the age at which the treatment is begun. The clinic was started with the desire to find out how far it is necessary to limit the age of the child at which treatment can be undertaken with success, and experience has shown that pessimistic forecasts are quite unjustifiable.

TECHNIQUE OF TRAINING

The technique of training the eyes to focus on the same object at the same minute may be divided into 3 parts: (*a*) acquiring of binocular vision (B.V.); (*b*) training of con- and divergence; (*c*) acquiring of stereoscopic vision.

Acquiring Binocular Vision.—When the sight of the squinting eye has been made equal to that of the straight one, or is able to fix, the power of binocular vision is investigated by means of the amblyoscope. The first series of pictures consists of, for example, a bird on one slide and a cage on the other, and the like. By moving the arms of the amblyoscope the pictures advance towards one another until they coincide so that the bird is seen as if inside the cage. When the child sees the bird in the cage, both eyes are then focused on the same spot and binocular vision *at that point* has been obtained, both eyes turning towards the nose at the same angle. When this stage has been reached, the eyes have to be taught to adduct and to abduct at the same time and equally.

FIG. 1.—Series 2 A. For horizontal deviation.

Training of Con- and Divergence.—For this purpose the second series of pictures has been devised (see Fig. 1). Each pair has a large central figure, such as a goat, a horse, an engine, while above one figure is a smaller object, such as a bird, and below its pair is a dog, &c. When the two central images coincide only three objects are seen, the central image with the smaller figures above and below. These small ones should be very definite and compact in outline so that when the arms of the amblyoscope move to and fro, they tend to keep the two central images as one, thus developing the power of true con- and di-vergence.

Both these movements are deficient in this form of squint but it is better to begin with the training of convergence; it is easier and more effective. Binocular vision having been obtained, the child saying he sees one goat, with a bird above and a moon below, the arms of the amblyoscope are slowly and steadily pressed together, while the trainer urges the child to keep the bird and the moon in position above and below the goat. He must be constantly questioned as to what he sees, and the questions must be changed in form, in tone of voice, and in manner, so as to prevent the child from answering mechanically. When making these questions one must have a very definite knowledge of what the child sees, and be on the alert against being deceived, for with the best will in the world to speak the truth, the child may deceive unconsciously. Moreover the eyes tire quickly and must have frequent rests. Ten minutes at the most is all that can be done while the child is honestly striving to keep the images together, and one must be on guard that the tired eye does not go in (and produce "faulty projection") while still the child continues to give apparently satisfactory answers. One would imagine that where the eye goes in, one's first effort would be to separate the eyes by moving the arms apart, but it will be found that making the eyes truly converge gives much better results than attempting to make them diverge Force convergence and in a short time divergence may be begun.

Fatigue, both ocular and mental, is a reason for not allowing the child to handle the amblyoscope himself, especially in the second series of slides. In the first series, that of putting the bird into a cage, convergence and divergence are not practised and there is no possibility of the child not understanding what is to be done, nor of doing it in the wrong way, nor is it tiring. Where binocular vision is absent, and this especially in alternating squint with no loss of vision, one can give the amblyoscope to the child and let him try for half an hour at a time. He must be made comfortable, sitting lower than a table on which he can rest the elbows. The eyes do not get tired because there is no training of the act of convergence, merely that of binocular vision in one particular position.

Where there is an upward squint as well as an inward one, the best slides have a vertical central figure, such as a tree, upright line, or a pillar-box, with a figure on opposite sides of each pair of slides (see Fig. 2). This obviates raising or lowering one arm of the amblyoscope or its corresponding picture, and causes the errant eye to come down to its proper level.

After con- and divergence have been trained to the fullest extent with a range of quite 90 degrees as gauged on the scale of the amblyoscope, stereoscopic slides are shown, and the patient is carefully questioned as to what he sees. One must, in this as in the second series, get into the mentality of the child and realise in one's own mind what he is seeing. On obtaining stereoscopic vision, the eyes are straight when looking through the amblyoscope, but may revert to the bad position the instant it is taken away. This is especially the case with alternating squints when B.V. was absent at first, and was attained with great difficulty. One of my worst failures was a girl of 5, with good vision in each eye and an extreme squint in either alternately. It took three years before she could get the bird in the cage, but after that she obtained a great range of convergence, and stereoscopic vision, so far as one could determine; but the squint was nearly as large when she left at the age of 14 as when she came. This was a case on which I was very anxious to have an operation; unfortunately the child was terrified and has steadfastly refused, but there seems little doubt that after this training the result would be a great success, although these are the very cases which are so difficult to cure by operation if there has been no preliminary training.

Alternating squints, with very little or no error of refraction and good vision in either eye, are the most difficult. They have usually no B.V. and it may take years before this can be obtained and when advanced to the second series may acquire an immense range of true con- and divergence; while working with the amblyoscope, the eyes appear to be perfectly straight, but immediately go back to the old position on ceasing to do so. If these children are seen daily, a month or two makes a rapid improvement in the position of the eyes, but these children only attend once a week, and frequently miss even that, while holidays cut down the attendance to only nine months in the year. Operation after training in these cases has been most successful and I advise it whenever the squint

FIG. 2.—Series 2 B. For both horizontal and vertical deviation.

persists after full con- and divergence and stereoscopic vision have been acquired.

The treatment by amblyoscope is not as easy as it sounds. It requires a very long experience of many cases and immense patience and understanding; also a knowledge of the infinite mistakes and misunderstanding to the child is liable. Cases with good B.V. and convergence are easy and require no great skill on the part of the surgeon. But children with no B.V., who lose first one image and and then the other, and in the second series cannot get any range of con- and divergence have to be helped by the surgeon's understanding of their difficulties, by special ways of showing the pictures and of moving them to and fro, and by judgment of what the child is really seeing, no matter what he says.

The large instruments with electric light and coloured pictures and with innumerable gadgets for moving separately the arms in different directions are nothing more than glorified amblyoscopes and are not more

efficient than amblyoscopes properly used, and a good many of the gadgets are not at all necessary. The pictures are not artificially lit in my clinic, and the arms of the amblyoscope need have no separate movement if the pictures I suggest are used. But the more elaborate instruments have many advantages. The children like the coloured pictures, and are more interested in them. The position of the eyes is better shown, and the surgeon is not obliged to assume a cramped position nor to hold the instrument for the child to look through. I find too that the ordinary amblyoscopes quickly become maladjusted; one arm may be higher than, or twisted slightly in relation to, the other. When using it, the surgeon should look through it himself before showing it to the child. The larger instruments, being more fixed, have not these defects. I should like to suggest that a much simpler form might be made with fewer gadgets, which would be equally effective and not so expensive. The simpler and cheaper they are the better, since the establishment of squint-training clinics in every district where there are many children is greatly to be desired. Ordinary stereoscopes are of no use whatever until the child has obtained stereoscopic vision with the amblyoscope. The same may be said of choreographs, but these supply an interest and change for the children and are useful in that way.

When the eyes are straight (i.e., no squint when the glasses are removed) and good con- and divergence have been obtained as well as stereoscopic vision, the child is discharged for six months. He is then called up again, and the eyes examined for loss of vision, or squint, or loss of ability in amblyoscopic exercise. If these are normal he is discharged for a year, and at the end of that time, if there has been no retrogression he is discharged permanently. Sometimes the sight may have gone back, but a few weeks or months of "soaping" brings the vision to normal again, and he is given another course of training. When this is satisfactory he is discharged for another six months, but not permanently until a year has elapsed without any retrogression. For training it is not so necessary to begin at an early age as it is for the restoration of vision, for cases of cure have occurred when training has been begun as late as 13 and 14, while certain adults gain great benefit from it. I consider the best age to begin in alternating squints is about 8 years old, but where sight has been restored in the squinting eye, training should follow on such restoration without waiting.

Results

The results tabulated in Table I. are taken from current and past records of patients treated in the clinic since 1924. Unfortunately most of the records of discharged patients was lost during 1928.

The results tabulated in Table II. are taken from short private notes of cases of which fuller records are among those lost and are therefore set out in less detail.

Results in 210 *cases dating from* 1924

1. Straight on restoration of vision	41	(19%)
2. Straight after training	113	(53%)
3. Straight with glasses, slight squint* without	17	(8·1%)
4. Slight squint with glasses	13	(6·2%)
5. Much improved	20	(9·5%)
6. Slight improvement or failure	6	(3%)

Children who did not attend for training, or attended so seldom that no effect could possibly result have not been included in the tables.

Group No. 1, although straight on restoration of vision, were found to have great deficiency in the power of convergence, and had a training of a few months only to develop this. Groups 2, 3, and 4, nearly all constant squints, took an average of 11·9 months of squint-training. Groups 5 and 6, were all alternating squints and constituted 13·3 per cent. of the whole; and the time taken in their training averaged 32·3 months.

Some of the patients were very irregular in their attendance and one month may represent only one or two treatments instead of the four or five among the regular attendants. The alternating squints were on the whole more regular in attendance than the others.

Results in 255 *cases dating from* 1915 *to* 1922

1. Straight after training and restoration of vision	171	(67·02%)
2. Slight squint	48	(18·8%)
3. Much improved	28	(11%)
4. Failure	8	(3%)

Among the 8 failures was a family of 4 whose parents both squinted and the whole family was of very low intellect.

The work of the clinic goes to prove that in squinters the centre controlling the power of true convergence of the eyes is deficient. When it is quite undeveloped, alternating squint occurs early in life and training must be carried out until the eyes can converge before any operation should be done. In constant squint there is less deficiency in the centre, and training has been successful in curing most cases. If the squint does not entirely disappear it is reduced to quite negligible proportions.

Any kind of illness, injury, shock, fright, operation, or strain, whether mental or physical, will cause a squint in those with a deficient coördinating centre. I have not found a case of squint occurring after an illness without this deficiency or a very large error of refraction. During treatment, an accident or illness may be most detrimental to the progress already made.

A boy of 5, who had a high error of refraction, and a very large squint, had the sight of the bad eye restored from 6/60 to 6/6 with loss of the squint except occasionally on removing the glasses. He was knocked down by a car, and on his return to the clinic after some weeks in hospital, the squint had returned, he had lost binocular vision and could do none of the exercises. His mother then became impatient and he was taken to a hospital. Even the removal of teeth under an anæsthetic may be followed by severe retrogression.

The feature common to nearly all the children of the clinic is the habit of mouth-breathing. It is rare to have a normal nose-breathing child brought with a squint, and those that are are usually the true alternating squints with a very deficient centre. Moreover, until the child has learnt to keep the lips closed it is very difficult to get rapid improvement in vision, and afterwards to increase the range of convergence. Consequently an important part of the treatment consists in curing this habit. The consequences to the general health and appearance, are pointed out to both mother and child, and in very bad cases, a prize is promised if the child learns to keep his mouth closed. In most this habit is thus cured, although the children are seen only once a week or even less. Operation for enlarged tonsils and adenoids is not advised unless these are septic, because of the bad effect operations have on the progress of the case. When the child learns to keep the mouth shut, the adenoids and enlargement of the tonsils usually disappear. I am convinced that the ill-health, the susceptibility to infection, the frequent colds, bronchitis, and cough, the chronic laryngitis and nervous irritability associated with the mouth-breathing habit are very potent direct causes of squint.

* Slight squint is one which is not seen without special examination, and to the laiety appears to be straight.

ALKALOSIS ARISING IN TREATMENT OF PEPTIC ULCER

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The use of large doses of alkali in the treatment of peptic ulceration was first described by Sippy [1] in 1915, since when alkalis have held a prominent place in the treatment of this condition, and of dyspepsia in general. The occurrence of certain symptoms associated with a raised alkali reserve was observed in some of Sippy's cases by Hardt and Rivers,[2] who in 1923 published the first clinical account of uncompensated alkalosis, recording 16 cases. The clinical picture and chemical findings were fully described in 1932 by Cooke [3] whose 9 cases brought the total on record to 68.

From these introductory remarks it would appear either that alkalosis is rare or that it often passes unrecognised. The object of this paper is to suggest that the second explanation is probably the correct one, and further to draw attention to certain features of alkalosis which in previous accounts have been omitted or insufficiently emphasised.

The present series of 7 cases, collected from the wards of a general hospital, shows the necessity of keeping in mind the possibility that alkalosis may develop in any case taking alkalis regularly, even in moderate doses. Although the dosage of alkali does not vary greatly in the different wards, no less than 5 of these cases were diagnosed by one physician or his assistants, who were on the look-out for the condition, and it is therefore probable that many cases pass undiagnosed, either to recovery or (more probably) to death.

Alkalosis is said to be commoner in men than in women, and of the 7 patients no less than 6 were men.

SYMPTOMS AND SIGNS

Symptoms are both numerous and varied, and are rarely if ever all seen in any one patient or even series of patients. The most characteristic are anorexia, headache, irritability and changes in mentality, nausea, vomiting, aching pains and twitching in the muscles of limbs, and weakness which may amount to prostration. Flushing and perspiration may be present, and, in severe cases, slow respiration-rate, rapid pulse, tetany, and even fits may precede the onset of coma which is usually fatal, the patient dying uræmic.

The headache is characteristic, and is described by the patient as a sensation of weight on the top of the head. The mental changes also deserve brief mention owing to their lack of uniformity; most patients become aggressive and difficult to manage, while others (as in Case 2 below) are confused and disorientated. Case 1 is interesting in this connexion because the first sign of his condition was recognised by the ward sister, who noted the patient's inability to keep his bed tidy.

Tetany, even in latent form, was not observed in this series, but in Case 4 there were two fits, in one of which the tongue was bitten, the reflexes remaining remarkably brisk.

Physical signs.—The patient may be flushed and respiration shallow, but these signs are often absent, and were not noted in any of the present cases. The tongue is dry and furred, and, apart from muscular tenderness and urinary changes, the principal signs are those of increased neuromuscular excitability; these include brisk reflexes, muscular twitchings, and occasionally latent or frank tetany with carpo-pedal spasms.

Incontinence may complicate severe cases, and occurred for a short time in Case 1. The urine is typically increased in amount, alkaline in reaction, and contains protein and granular and hyaline casts, red and white blood-cells being common but less constant findings. The amount of protein is usually small, but quite large amounts may be present, as in Case 1, and the urine may resemble that of acute nephritis.

CHEMICAL FINDINGS

The alkali reserve is raised from its normal range of between 55 and 75 c.cm. of CO_2 per 100 c.cm. of plasma to 100 c.cm. or even more, the highest value recorded below being 93·2 c.cm. in Case 1. The blood-urea and non-protein nitrogen are also raised in all cases of recognisable alkalosis, and may reach the exceedingly high figures of true uræmia. The chloride content of both blood and urine was found by Cooke to be diminished, but was not estimated in the cases described.

THE CASES

The full list of alkalis used in the treatment of these patients includes magnesium oxide and carbonate, sodium citrate and bicarbonate, calcium carbonate, and bismuth oxycarbonate. As these drugs were given in mixtures of varying composition and dosage it has been decided, for the sake of simplicity, to state the form of alkalis used in each case, and express both the total and average daily intake in terms of grammes of sodium bicarbonate.

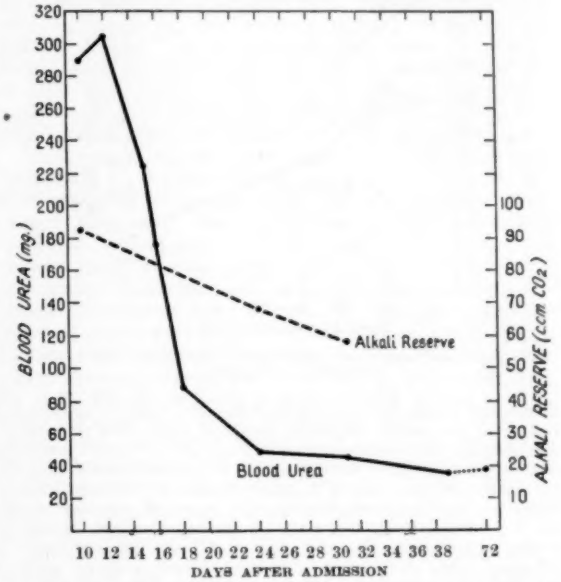
BLOOD UREA (mg.)
ALKALI RESERVE (c.cm CO_2)
Alkali Reserve
Blood Urea
DAYS AFTER ADMISSION
10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 72

FIG. 1 (Case 1).—Blood-urea (mg. per 100 c.cm.) and alkali reserve (c.cm. per 100 c.cm.) from day of onset of alkalosis.

Case 1.—Male, aged 30. This patient was admitted on account of hæmatemesis, with only three weeks' history of epigastric pain which was continuous and unrelated to food. Hæmatemesis was preceded by melæna on two consecutive days. Examination was entirely negative except for marked anæmia, the hæmoglobin being 54 per cent. Treatment consisted of a modified Lenhartz diet and alkalis. Nine days after admission, after three days' constipation, the patient was seen to be sleeping with his eyes open. Next day

restlessness and inability to keep the bedclothes tidy were noted by the sister of the ward, and the same night the patient insisted on getting out of bed to pass urine. This was followed by incontinence of urine and fæces, and alkalis were discontinued. The blood-urea was 290 mg. per 100 c.cm., and the alkali reserve 93·2 c.cm. CO_2 (Fig. 1). Drowsiness and dryness of the tongue were present, and the urine contained protein and occasional red cells, but no casts, and the blood pressure was slightly raised. Ammonium chloride was given for two days in doses of 20 grains four-hourly, but had to be stopped because of a mild colitis. The patient rapidly improved, but eight days after the onset of symptoms granular casts appeared in the urine which had the characteristics of a mild attack of acute nephritis. Red cells and casts persisted for two months, at the end of which the patient had lost all symptoms of both peptic ulcer and alkalosis. X ray evidence of ulcer was never obtained.

Alkalis (powder) .. Magnesium oxide, sod. citrate and bicarb., and bismuth oxycarbonate.
Total intake .. 321·6 g. sod. bicarb.
Average daily intake 40·2 g. ,, ,, for 8 days.

CASE 2.—Male, aged 38. This patient gave ten months' history of hæmatemesis and epigastric pain unrelieved by alkalis. A month before admission the patient began to vomit, and X ray examination showed the presence of a gastric ulcer. The only abnormality discovered on examination was epigastric tenderness and rigidity.

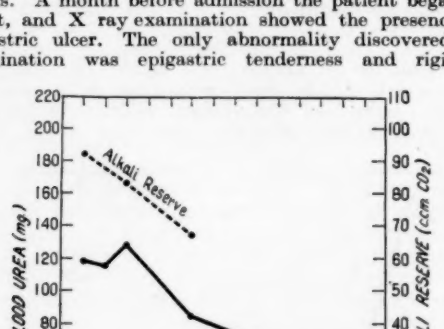

FIG. 2.—Blood-urea and alkali reserve, in Case 2, from day of onset of alkalosis.

Treatment consisted of modified Lenhartz diet and alkalis, and after one week vomiting occurred daily, the patient complaining of anorexia and a dry mouth. On the tenth day, after four days during which the bowels were only opened once, the patient became mentally confused and disorientated, and complained of a sense of pressure on the top of the head and pain in the leg muscles, which began to twitch so that he could not keep his legs still. Alkalosis was diagnosed, and the alkali reserve and blood-urea were estimated, the former being 92 c.cm. CO_2, and the latter 118 mg. per 100 c.cm. (Fig. 2). The urine was strongly alkaline, and contained occasional red cells and epithelial and hyaline casts. Alkalis were discontinued, and acid sodium phosphate was given in doses of 30 grains three times daily with rapid relief of all symptoms except the pain in the legs, which continued for a further two weeks.

Alkalis (powder) .. Magnesium oxide, calcium carb., sod. citrate, and bismuth oxycarbonate.
Total intake .. 437·1 g. sod. bicarb.
Average daily intake 43·7 g. ,, ,, for 10 days.

CASE 3.—Male, aged 63. In this case there was only one week's history of giddiness and melæna without abdominal pain at any time. Physical examination was negative except for signs of severe anæmia (hæmoglobin 38 per cent.). The urine was normal. Treatment consisted of modified Lenhartz diet, citrated milk and alkalis on which the patient improved for three days. On the fourth day the pulse-rate rose without evidence of renewed bleeding, and alkalis were stopped. On the following day the patient developed parotitis and became irrational. On the sixth day after admission the blood-urea was found to be 140 mg. per 100 c.cm. and the alkali reserve 68 c.cm. CO_2. A blood transfusion was given without improvement, the blood-urea rose to 225 mg., muscular twitchings developed, and the patient died in coma eight days after admission. During the whole period the bowels were only once opened without enemata, which were given on two occasions. Examination of the urine could not be carried out because of incontinence.

Post mortem the kidneys appeared to be normal to the naked eye. On microscopical examination the glomeruli were normal, but the tubules were seen to contain small quantities of lipoid, the tubular epithelium being rather swollen. No other abnormalities were seen.

Alkalis (powder) .. Magnesium carb., sod. bicarb., and bismuth oxycarb.
Total intake .. 90·2 g. sod. bicarb.
Average daily intake 22·5 g. ,, ,, for 4 days.

CASE 4.—Male, aged 47. This patient gave a typical history of peptic ulcer over a period of five years with melæna for three weeks before admission. Radiography showed a duodenal ulcer. The only abnormal physical signs were epigastric tenderness and rigidity. Treatment was similar to that in the previous cases, and the patient improved for about a week when he began to vomit. He vomited five times during the sixth and seventh days after admission, and on the eighth, after four days' constipation, suddenly had a fit without aura or obvious tonic or clonic stages. There was no foaming or involuntary micturition, but the tongue was bitten and the reflexes were subsequently found to be very brisk. The urine was normal. Later on the same day a second fit occurred, similar in all respects to the first. Next day the patient was drowsy, his tongue was moist, but headache, muscular pains, and twitchings were absent. The alkali reserve was not determined, but the blood-urea was found to be 142 mg. per 100 c.cm. The urine now contained granular and hyaline casts, but no blood or protein, both of which appeared in small amounts during the next two days. Alkalis were discontinued, and five days after the onset of fits the patient had greatly improved, the blood-urea having fallen to 64 mg. Ten days later the blood-urea was 36, and X rays showed no evidence of ulcer.

Alkalis (powder) .. Magnesium oxide, sod. bicarb., and calcium carb.
Total intake .. 438·8 g. sodium bicarb.
Average daily intake 54·8 g. ,, ,, for 8 days.

CASE 5.—Male, aged 30. This man gave a typical history of peptic ulceration extending over five years, with hæmatemesis and perforation four years previous to admission. On examination the only abnormal signs were tenderness and rigidity in the epigastrium. The urine was normal. The patient was treated conservatively with diet and alkalis in a surgical ward for seventeen days with relief of pain. Vomiting now became more frequent, the blood-urea was found to be 60 mg. per 100 c.cm., and alkalosis was diagnosed. Alkalis were discontinued, and acid sodium phosphate given in doses of 30 grains three times a day for one day, after which the patient was transferred to a medical ward. During the next two days he developed anorexia, became gloomy and depressed, and complained of a sensation of heaviness in the head. Constipation was marked during this period and for the next nine days, during which the bowels were only once opened naturally. The tongue was dry and furred, but pains in the legs and muscular twitchings were absent. The blood-urea was 60 mg. per 100 c.cm.; the alkali reserve was not determined. The urine at this stage was alkaline and contained granular and hyaline casts, but no albumin or blood. During the next five days the blood-urea rose to 100 mg., the urea clearance being only 43·5 per cent. of normal. During the first week following his transference to a medical ward the patient received no acid, and was actually given a drachm of alkaline powder on eight occasions because of abdominal pain. At the end of a week all alkali was withheld, but the patient continued to be irritable and difficult, the tongue remaining dry and a trace of albumin being present in the urine. The blood-urea fell slowly during the next fortnight, at

the end of which it was 65 mg. with a urea clearance of 68 per cent. of normal. One week later the patient was transferred back to a surgical ward because of persistent pain and vomiting, and a partial gastrectomy was performed with considerable difficulty owing to adhesions, two days after which he died of peritonitis. There was no post-mortem examination.

Alkalis (powder) .. Magnesium oxide and carb., calcium carb. and sod. bicarb.
Total intake .. 654·4 g. sod. bicarb.
Average daily intake 36·4 g. ,, ,, for 18 days.

November	9	12	15	18	21	23
Blood-urea in mg. per 100 c.cm.	60	72	100	70	50	65
Blood-urea clearance per cent. normal	—	—	43·5	—	—	68·0

CASE 6.—Female, aged 76. This patient had suffered for two months from pain after food, anorexia, and vomiting. There was a history of cerebral thrombosis 2½ years previously. Examination was negative except for severe anæmia (hæmoglobin 57 per cent.). The stools were positive for occult blood, but radiography revealed no ulcer. The patient was treated with a modified Lenhartz diet and alkalis, and improved except for frequent vomiting until one month after admission, when she developed retention of urine, and had to be catheterised. At the same time the patient's mental condition was noted to be strange, and she vomited twice. As in the other cases the onset of symptoms was preceded by a period of obstinate constipation necessitating digital removal of hard fæcal masses. Alkalosis was suspected and alkalis discontinued. The blood-urea was found to be 95 mg. per 100 c.cm., but the alkali reserve was not determined. Large doses of acid sodium phosphate were given, and the blood-urea fell to 64, but rose again two days later to 72 with the onset of hæmaturia which was possibly due to excessive acid. One week later the blood-urea had again fallen to 40, the blood-urea clearance being 74·7 per cent., but hæmaturia persisted. The patient returned home at her own request.

Alkalis (mixture) .. Magnesium oxide, sod. citrate and bicarb., calcium carb., and bismuth oxycarbonate.
Total intake .. 748·1 g. sod. bicarb.
Average daily intake 23·4 g. ,, ,, for 32 days.

CASE 7.—Male, aged 64. This patient was admitted for abdominal pain which had persisted for five years with attacks of vomiting. On examination there was epigastric tenderness and rigidity and severe anæmia (hæmoglobin 30 per cent.). Occult blood was present in the stools. The patient was put on a modified Lenhartz diet and alkalis, and after eleven days became flushed and mentally deranged, restraint being necessary to keep him in bed. Next day the patient was comatose, with a dry furred tongue and Cheyne-Stokes respiration. The urine was normal. The coma deepened, temperature rose suddenly to 106° F., and the patient died three days after the onset of symptoms. During the last eight days the bowels were only once opened, and then with an enema. As the diagnosis of alkalosis was not made until forty-eight hours before the patient's death alkalis were continued up to this time, and the alkali reserve was not estimated, but the blood-urea one day before death was found to be 250 mg. per 100 c.cm.

Post-mortem examination showed a small gastric ulcer which appeared to be healing. Macroscopically the kidneys were normal except for slight reduction of cortex, while microscopic examination showed only slight coarse fibrosis, occasional arterio-sclerotic changes, and a few small calcareous deposits.

Alkalis (mixture) .. Magnesium oxide, sod. citrate, calcium carb., and bismuth oxycarbonate.
Total intake .. 540·5 g. sod. bicarb.
Average daily intake 38·6 g. ,, ,, for 14 days.

DISCUSSION

Cases 1 and 2 may be considered typical examples of alkalosis with raised alkali reserve and blood-urea. The most interesting features are the persistence in the former of the urinary changes, and in the latter of muscular pains in the legs, for a long while after the other symptoms and signs had disappeared. In Case 3 the alkali reserve was only 68, but as alkalis were stopped two days before this determination was made it is reasonable to suppose that it had probably been much higher. The muscular twitchings, severe constipation, and high blood-urea, in the absence of any pathological changes in the kidney, can best be explained as due to alkalosis, and the amount of alkali taken is at least compatible with such a diagnosis. In the remaining four cases the alkali reserve was not determined, and the diagnosis therefore rests on the clinical picture, the blood-urea findings, and (in Case 7) the absence of pathological changes in the kidneys.

In Case 4 the sudden onset of fits and drowsiness with the appearance of casts in the urine, all of which disappeared after the stopping of alkalis, puts the diagnosis of alkalosis beyond reasonable doubt. The rise and fall in blood-urea which paralleled the onset and disappearance of the clinical manifestations is typical of the condition under consideration. Cases 5 and 6 may be looked upon as mild but definite examples in which the clinical picture and raised blood-urea can best be explained as being due to the large amounts of alkali they are known to have received. The diagnosis in Case 7 was not suspected until just before death, and is based on the absence of any evidence of kidney disease in a patient who was receiving large doses of alkali, and who died comatose with a high blood-urea. While the evidence is circumstantial it was considered sufficiently suggestive of alkalosis to admit of inclusion in the present series.

Analysis of these cases reveals certain features in common. In all of them the onset of symptoms was preceded by several days' obstinate constipation. Apart from any direct relationship there may be between constipation and the onset of alkalosis it is possible that there may be an important indirect connexion between the two. The proportion of magnesium oxide or carbonate is often increased in cases of peptic ulcer as a convenient means of correcting constipation without incurring the disadvantages of more drastic purges—a practice which was employed in 2 of the above cases, and one which, owing to the high alkalinity of these magnesium salts, may well determine the onset of alkalosis. It will be observed that magnesium oxide or carbonate was taken by all the patients, and was the drug chiefly responsible for the high sodium bicarbonate equivalent of the average daily intake in Cases 1 to 5.

In addition to constipation urinary changes were observed in the majority of the cases at some stage during the illness. The urine was normal in every case on admission. The reaction was strongly alkaline at the onset of symptoms in the 6 cases in which it was examined. In 2 cases the urine remained otherwise normal throughout, and in 1 was not examined owing to incontinence. Protein was present in small quantities in the urine of the 4 remaining patients, and the centrifugalised deposit showed occasional red cells, white cells, and granular and hyaline casts in varying numbers. Epithelial casts were also found in 1 case.

Dosage of alkali.—Before considering the amount of alkali taken it may be worth while to consider the physical form in which it was given. In 5 of the 7 cases alkali was given in powder form, while the remaining 2 patients received mixtures. The importance of this distinction lies in the possibility of much

larger doses of alkali being taken in the form of powder than are prescribed, because of variations in the size and degree of filling of the spoon used. This source of error has been excluded as far as possible as a causative factor in the cases described, but is one seriously to be considered and guarded against when prescribing alkaline powders to out-patients.

The total amount of alkali taken depends on the period of administration, and is therefore less instructive than the average daily intake. The former, expressed in terms of grammes of sodium bicarbonate, varied between the wide limits of 85·3 and 917·1, the average being 493·2, while the latter, similarly expressed, ranged between 21·5 and 54·8 with an average of 38·1.

In one case the daily intake exceeded 50 g., in two 40 g., in two 30 g., and in two 20 g. While it is impossible to draw conclusions from so small a number of cases it seems possible for alkalosis to develop on relatively small doses of alkali, although it must be admitted that, of the patients receiving only about 20 g., one (Case 6) was an elderly woman with arterio-sclerosis and mild symptoms of alkalosis, while in the other (Case 3) the diagnosis is open to doubt.

It is well known that vomiting tends to produce alkalosis, and, in Case 6, the frequent vomiting (twelve times in fourteen days) which immediately preceded the onset of alkalosis may help to account for its occurrence on such relatively small dosage of alkalis. It is of interest in this connexion to note that the sudden onset of fits in Case 4 followed two days of repeated vomiting. In the remaining cases, however, vomiting was not a marked feature.

The reason why alkalosis develops in some patients and not in the majority treated with equally large doses of alkali is not known, but may be due to a failure on the part of the kidneys to excrete alkalis. It is known that damaged kidneys are particularly susceptible to alterations in the hydrogen-ion concentration of the blood either towards the acid or alkaline side, the range of optimum renal function being considerably restricted, but in none of the cases recorded was there any clinical evidence of previous renal disease, and in the two which came to autopsy no pathological changes of significance were discovered.

Treatment.—Severe degrees of alkalosis can always be prevented if the existence of the condition and the nature of its clinical manifestations are remembered, the bowels of all patients receiving large doses of alkali kept well open and magnesium salts given with reasonable discretion. In any suspected case all alkalis should be withheld, and the alkali reserve and blood-urea estimated without delay. If these are raised, acid should be given in the form of ammonium chloride or acid sodium phosphate, the former in doses of grs. 15–20, and the latter grs. 30–40, three times a day after food, until the alkali reserve, which should be estimated daily, or at least every two days, has returned to normal limits. The protein intake should be limited to about 40 grammes a day, and all food given in fluid or semi-solid form, careful attention being paid to the condition of the mouth and bowels.

Treated along these lines all but the most severe cases should recover, but symptoms such as pains in the legs may persist for several weeks. It is unwise, however, to perform any operation until the blood-urea has been normal for some days.

CONCLUSIONS

The treatment of peptic ulcer by alkalis and diet is occasionally complicated by the occurrence of certain symptoms associated with urinary changes and a rise in the alkali reserve and blood-urea. These symptoms are preceded by a period of marked constipation and, if untreated, may lead on to coma and even death in uræmia. The amount of alkali required to produce alkalosis is usually large, being equivalent, in the 7 cases here recorded, to about 40 grammes of sodium bicarbonate a day; but symptoms may result from smaller doses, especially if there is severe or continued vomiting. The prognosis in cases recognised in the early stages and suitably treated is good, but in the late stages the patients may die in spite of treatment.

I wish to thank the honorary physicians of St. Bartholomew's Hospital for their kind permission to report on cases under their care, and especially Dr. George Graham for much valuable help and criticism.

REFERENCES

1. Sippy, B. W.: Jour. Amer. Med. Assoc., 1915, lxiv., 1625.
2. Hardt, L. L., and Rivers, A. B.: Arch. Internal Med., 1923, xxxi., 171.
3. Cooke, A. M.: Quart. Jour. Med., 1932, xxv., 527.

Clinical and Laboratory Notes

A CASE OF PNEUMOCOCCAL MENINGITIS

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THE typing of the pneumococcus in cases of meningitis is not undertaken sufficiently often, as a routine, for figures to be available for a large series. Of 11 cases occurring among adults at Selly Oak Hospital during the last two years, all associated with pneumonia, the pneumococcus belonged to Type I. in 9, to Type II. in 1 (in which otitis was also present), and to Group IV in 1 which followed trauma at the base of the skull. All these patients died. In 7 of the Type I. cases serum treatment was attempted, but 6 patients came under treatment too late for hopes of success to be seriously entertained, and died shortly after it was commenced. The seventh survived for eighteen days after a diagnosis of meningitis had been made, and showed at one period striking clinical improvement. The post-mortem appearances were, at the same time, remarkable enough to encourage the belief that cure is a probability if treatment can be undertaken energetically in the early stages of the disease. At least one case of recovery after the use of serum has been reported.[1]

The patient, a male metal-polisher aged 31, was taken suddenly ill on Jan. 20th, 1935, with pleural pain and rigors. Received at hospital at 11 P.M. on Jan. 22nd, he had the typical symptoms and signs of a right upper lobe pneumonia. A mouse was inoculated with sputum the same night, and 60,000 units of serum were given intravenously the following morning (23rd), and 30,000 on the 24th. Blood cultures taken on the 22nd, 23rd, and 24th were all sterile, but the general condition was poor, and cyanosis was present in spite of intranasal oxygen.

On the 25th headache, present in mild form at the onset, became severe, and the spinal fluid was found to be turbid, containing 8000 cells, chiefly polymorphs, per c.mm., and Type I. pneumococcus. 60,000 units of serum were given intrathecally on that day, 60,000 on the 26th, 50,000 on the 27th, and 40,000 on the 28th. Spinal puncture was performed each day thereafter, but no further serum given, until Feb. 2nd, when only 5 c.cm. of fluid could be obtained with difficulty. A cisternal puncture was made on Feb. 2nd and 40,000 units serum

Date.	Blood culture.	Source.	Cerebro-spinal fluid.				Serum (thousands of units).			Condition of patient.
			Appearance.	Cells per c.mm.	Pneumococci.	Culture.	Intravenous.	Intraspinal.	Cisternal.	
Jan. 23rd	Sterile.	..	..	..	..	..	60	..	..	Symptoms pneumonic.
,, 24th	,,	..	..	..	..	..	30	..	..	..
,, 25th	,,	Spinal.	Turbid.	8000	Present.	Pos.	..	60	..	Symptoms meningeal.
,, 26th	..	,,	,,	..	,,	,,	..	60	..	
,, 27th	..	,,	,,	..	Appeared dead.	Neg.	..	50	..	
,, 28th	..	,,	Less turbid.	7800	Few, dead.	,,	..	40	..	
,, 29th	..	,,	Slightly turbid.	..	,,	,,	..	..	..	Headache and muscle spasm decreasing.
,, 30th	..	,,	..	6000	None.	,,	..	..	..	Mental confusion, but no loss of consciousness.
,, 31st	..	,,	..	6500	,,	,,	..	..	..	
Feb. 1st	..	,,	..	5800	Present.	,,	..	..	..	
,, 2nd	..	Cisternal.	Slightly turbid.	..	,,	Pos.	..	..	40	
,, 3rd	..	,,	..	..	..	..	..	..	..	
,, 4th	..	,,	Slightly turbid.	2000	None.	Neg.	..	..	60	
,, 5th	..	,,	..	Few.	,,	,,	..	..	..	
,, 6th	..	..	..	..	..	..	..	..	..	
,, 7th	..	Spinal.	Turbid.	Very few.	None.	Neg.	..	..	..	Afebrile. Rational. Sanguine. Complete absence of symptoms.
,, 8th	..	..	..	..	..	..	..	..	..	
,, 9th	..	..	..	..	..	..	..	..	..	
,, 10th	..	..	..	..	..	..	..	..	..	Headache, becoming severe.
,, 11th	..	Cisternal.	Turbid.	..	Present.	Pos.	..	..	60	Collapse and death.

introduced; on the 4th this was repeated, and 60,000 units given. On the 5th cisternal puncture was done, but no serum given. Lumbar puncture was always attempted before cisternal puncture was resorted to.

The nature of the fluid obtained, dosage of serum, and condition of the patient are shown in the accompanying Table.

Spasm of neck muscles and of hamstrings was present throughout, but diminished after Feb. 1st. Headache and mental confusion disappeared on Feb. 6th, but were replaced for 24 hours by depression. From the 7th to 9th he was afebrile, rational, and symptomless, sat up and demanded food. On the 9th there was some headache, which became more severe, and a few drops of spinal fluid obtained on the 11th were turbid. Cisternal puncture was again performed and slightly turbid fluid obtained. 60,000 units of serum were introduced. The patient was in good condition at the end of the procedure (performed under general anæsthesia), but collapsed half an hour later and died in five minutes. At no time was blood observed in the fluid obtained by puncture.

At the autopsy, in striking contrast to the usual appearances of the brain in pneumococcal meningitis, the meninges appeared entirely clean except for a small area, half an inch across, on the extreme vertex, where a small collection of more or less inspissated pus was found. Around the medulla, and filling the foramen magnum, was recent blood clot, the obvious cause of death. There was no hydrocephalus and the lung showed complete resolution. No suppuration was present in the middle ears or mastoid cells.

In this case it seems certain that hæmorrhage was caused by trauma during the introduction of the serum, although one was unaware of any movement of the needle, and this danger must be reckoned as a very serious disadvantage in treatment. On the other hand, it is probable that in every case of pneumococcal meningitis the giving of serum by lumbar puncture will become impossible before adequate treatment has been given, and cisternal puncture become the only means of continuing it. Recovery in one case of Group IV. pneumococcal meningitis has been reported [2] after cisternal drainage by open operation, and this line of treatment, combined with serum in Type I. and II. cases (without which it is unlikely that recovery will take place), seems to give a very reasonable hope of cure. The danger of concealed hæmorrhage is thus removed, and a drainage-tube, which can be opened intermittently, provides an easy method of applying serum directly to the meninges.

References.—1. Revens, W. S., and McLaughlin, N.: Ann. Internal Med., 1934, viii., 1026. 2. Bedell, C. C.: Jour. Amer. Med. Assoc., 1934, ciii., 820.

SELF-PERFORMED ENTERECTOMY

By Theodose Ch. Astreos, M.D.
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THE following case is interesting because the method of suicide chosen was unusual and because uneventful recovery followed treatment of a condition seemingly hopeless.

A man, claiming to be 75 years old, was brought into the Paphos Hospital by the police, bleeding from a self-inflicted wound in the abdomen. Three pieces of small intestine wrapped in rags were produced, which had been cut out of the patient's abdomen by himself. He was a beggar, who had been living all his life under miserable conditions, and he often complained that his abdomen was full of bed bugs, which he felt creeping up and down inside his abdomen. He had often been heard threatening to commit suicide or "to cut open his abdomen to let the bugs out."

According to the statement of eye-witnesses, the patient, while sitting by the public highway stripped himself from the waist down, and, using an ordinary pocket knife, stabbed himself low in the abdomen and drew the knife upwards. His bowels protruded and, before any one could prevent him he cut out in quick succession three pieces of intestine, which he threw away. The police wrapped him in some dirty canvas bags, that had just been emptied of animal manure, and rushed him to hospital. The distance was two miles and he was seen about twenty minutes after the attempt.

The patient appeared to be about 65 years old, fully conscious and rational. He was euphoric and his features showed no signs of pain. The pulse was rapid but of fair quality. The abdominal wound looked like a surgical incision, extending from below the umbilicus downwards for about 4 in. in the midline. Two freshly cut ends of small intestine were protruding through it. The mesentery was bleeding profusely, and the wound was smeared with faeces and dust of animal manure.

Two intestinal clamps were placed on the cut ends of the intestine and the bleeding from the mesentery controlled with 18 hæmostatic forceps, which were

temporarily left in place. The wound was then covered with hot wet towels and preparations were hastily made for an operation. But the control of bleeding took some time, and before it was completed the patient collapsed. The pulse became threadlike. A subcutaneous injection of normal saline solution was immediately started and 800 c.cm. were given in about thirty minutes. By this time the pulse had improved sufficiently to permit operation under local anæsthesia. Novocain 2 per cent. solution with adrenaline was used while the patient was still collapsed. The ends of the intestine were pulled further out and a lateral entero-anastomosis was performed having cut off from both ends of the intestine about 3/4 in. The anastomosis was then covered with a fold of the omentum and this was fixed to the mesentery with three plain catgut stitches. The wound was once more cleansed with normal saline solution and ether, the incision renewed and lengthened by one inch, the contents replaced into the peritoneal cavity and the abdominal walls closed without drainage.

The three pieces of intestine, cut from one loop, measured 13, 14, and 17 cm. respectively, a total length of 44 cm. The protruded viscera were held in place tightly by the edges of the abdominal wound and this was one of the reasons that justified omission of drainage, the other being the fear that the patient might try to interfere with the wound in a second suicidal attempt.

Because of the patient's state of collapse it was thought that the avoidance of general anæsthesia would not seriously handicap the operation and that it would have the advantage of not permitting the abdominal muscles to relax and the viscera return into the abdominal cavity, increasing the danger of spreading the infection. There was also a slight chance that the rest of the abdominal cavity and contents were not infected.

Subsequent events justified this procedure, for the patient had an uneventful recovery and left the hospital on the fifteenth day, completely recovered. The absence of any fever seems remarkable, and it is interesting to speculate how much resistance to infection this man had accumulated during his long and miserable life as a beggar. Although he expressed no regret for his act and justified it, stating that "he had now got rid of the bed bugs," he later obeyed orders faithfully, when told that disobedience might have disastrous results. He continued to have excellent health and was free from any abdominal symptom when I last saw him.

I have to thank my chief, Dr. Cyril C. H. Cuff, for permission to publish this case.

ORGANISM OF SPIROCHÆTAL JAUNDICE IN A RAT FROM A NORTH OF ENGLAND COAL-PIT

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HONORARY PATHOLOGIST TO SUNDERLAND ROYAL INFIRMARY

Gulland and Buchanan [1] noted the occurrence of spirochætal jaundice in miners working in wet mines in Scotland. It would appear right to report the finding of an infected rat in a wet seam in the North of England.

On May 28th of this year, the miners' secretary of a lodge in the North of England, was directed to bring a living rat to me. The reason for this action was that one of the lodge members who had worked in a particular seam of this pit, had had an attack of what was (from hearsay), apparently spirochætal jaundice, others formerly suffering in the same way. I cannot better than quote from the secretary.

"The seam this person worked in is known as the 'X' seam. The average height is 18 in., very wet, and the water lies in pools. At the entrance to this drift, there is a sewage disposal works and a refuse tip. From time to time the rat inspector has visited this place, owing to it being over-run with rats, and laid poison to exterminate them. Nearly every one of the several cases of jaundice has occurred in the same area known as the 'Y' flat in the 'X' seam."

The rat was alive when I received it. It was killed and examined, when it seemed healthy. The bladder was half full, and I examined the urine by dark-ground illumination, and thought I saw one spirochæte. I therefore inoculated a guinea-pig, intra-peritoneally, this on May 28th, 1935. The animal remained well until Friday June 7th, and it died during the night, June 7th–8th; it was noted that there was conjunctivitis and that the animal was jaundiced. Post-mortem examination made on June 8th showed subcutaneous tissues deeply jaundiced, with typical hæmorrhages into the lungs, the so-called "butterfly mottling." Preparations from the liver stained by Fontana's method for spirochætes demonstrated their presence.

Thus the occurrence of cases of jaundice in a wet seam was associated with the finding of *Spirochæta icterohæmorrhagiæ* in a rat caught in the same place.

[1] Buchanan, G., Spirochætal Jaundice. Med. Research Council Spec. Rep. Ser. No. 113. 1927.

INHERITANCE OF PHENYLPYRUVIC AMENTIA (PHENYLKETONURIA)

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In a recently published paper [1] I described two brothers who were both idiots and who excreted an abnormal substance in the urine. This abnormal constituent was considered to by phenylpyruvic acid, a ketonic substance previously identified by A. Fölling [2] in the urine of certain imbeciles. The disease appears to be inherited recessively. More than one member of a sibship can be affected; the parents and the normally intelligent sibs do not excrete phenylpyruvic acid. In human populations, if a Mendelian recessive character is rare, practically all individuals in whom it is manifested will have parents who are carriers, that is to say, parents who carry the gene but who do not exhibit the character. In such families a fraction, approaching one quarter, of the brothers and sisters of a person who shows a recessively determined abnormality will show the same abnormality. Furthermore, as Garrod [3] first pointed out in connexion with alkaptonuria, the parents in these families will not infrequently be found to be consanguineous. Phenylpyruvic amentia, more conveniently termed phenylketonuria, is a rare disease and, if it is due to a single recessive gene, these criteria must be satisfied.

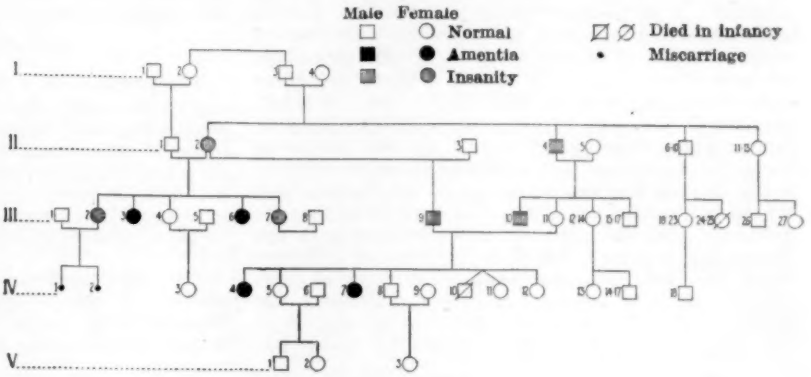
The present communication deals with a pedigree which was originally published [4] in order to demonstrate the mode of action of a rare recessive gene in a consanguineous family. Four female aments (previously referred to as four idiots but more correctly described as three idiots and one imbecile) were distributed among the offspring of two interrelated first cousin marriages. It was argued that the

[1] THE LANCET, 1935, i., 23.
[2] Zeitsch. f. Physiol. Chem., 1934, ccxxvii., 169.
[3] Garrod, A. E.: THE LANCET, 1902, ii., 1616.
[4] The Influence of Heredity on Disease, London, 1934.

defectives represented a rare special type of amentia, hitherto undescribed, and due to a single recessive gene. This conclusion was based upon three observations—namely, the sharp segregation of the affected from the unaffected members of the family, the correct degree of familial incidence of the disease among the sibs, and the effect of consanguineous parentage. The stimulus provided by the recent work of Fölling has resulted in the discovery that the only survivor (generation IV., No. 4, on the attached pedigree Chart) of the four aments in this pedigree is a case of phenylketonuria. It is not unreasonable to suppose that the three aments in this family who have died suffered from the same disease. Dr. J. H. Quastel (who suggested the name phenylketonuria) and Dr. H. A. Krebs have kindly examined the urine of the surviving patient. Phenylpyruvic acid has been identified with certainty and several new problems have been raised which are still under investigation. If the assumption is correct that the three aments who did not survive (III. 3, III. 6, and IV. 7) suffered from phenylketonuria, there can be little doubt that the disease is the expression of a single recessive gene. Since the original publication of the pedigree which is under discussion some further details have been obtained. The Chart has accordingly been revised and a full description of it is appended.

The genetical interest of this family does not cease with the recognition of the relationship between parental consanguinity and the appearance of a rare recessive character in the offspring. Fölling recorded the occurrence of mental disease in relatives of two of his patients. In the instances previously reported by me, the father began to suffer from

A PEDIGREE OF PHENYLKETONURIA



GENERATION I

1. Male; husband of I. 2; said to have been healthy; no further information obtainable.
2. Female; great great aunt of IV. 4; said to have been healthy; no further information obtainable.
3. Male; great grandfather of IV. 4; said to have been healthy; no further information obtainable.
4. Female; great grandmother of IV. 4; said to have been healthy; no further information obtainable.

GENERATION II

1. Male; husband of II. 2; healthy; died aged 81.
2. Female; paternal grandmother of IV. 4; showed signs of insanity when aged 75; died aged 77.
3. Male; no information obtainable.
4. Male; maternal grandfather of IV. 4; farm labourer; chronic melancholia from the age of 50; died aged 83.
5. Female; maternal grandmother of IV. 4; normal, so far as could be ascertained.

6–10. Males; normal, so far as could be ascertained.

11–13. Females; normal, so far as could be ascertained.

GENERATION III

1. Male; husband of III. 2; said to have been in a mental hospital; no details known.
2. Female; aged 59 now; recurrent mania with hallucinations; attacks at ages 23, 53, and 54.
3. Female; idiot—quite helpless; died at age of 4 years.
4. Female; died of peritonitis at about the age of 45; normal mentally.
5. Male; husband of III. 4; no information.
6. Female; idiot; never sat up—quite helpless; died at age of 4 years.
7. Female; suicide at age of 54 during an attack of melancholia.
8. Male; husband of III. 7; no information.
9. Male; father of IV. 4; illegitimate child of II. 2 and II. 3; b. 1866; aged 69 now; farm labourer; had a nervous breakdown at age of 44; has since been unable to work; now suffering from melancholia and chronic nephritis; urine contains no phenylpyruvic acid.
10. Male; b. 1864; farm labourer; melancholia with hallucinations; onset at 51; suicidal; died aged 54.
11. Female; mother of IV. 4; b. 1869; aged 66 now; healthy and mentally normal; urine contains no phenylpyruvic acid.

12–14. Females; normal, so far as could be ascertained.

15–17. Males; normal, so far as could be ascertained.

18–23. Females; normal, so far as could be ascertained.

24, 25. Females; died in infancy.

26, 27. Male and female; normal, so far as could be ascertained.

GENERATION IV

1, 2. Miscarriages.

3. Female; normal; accidental death at age of 14.
4. Female; b. 1894; aged 41 now; imbecile; mental age, judged by Stanford-Binet tests, 4 years 3 months, and by Porteus maze test, 3 years. She is excitable and talkative, stumbles over her words, and uses them in the wrong sense; she can run about, feed herself, and keep herself clean with supervision. Physically she is healthy, has a good appetite, but suffers from excessive sweating. She is small in stature, rather fat, has a mild degree of kyphosis, and is elderly in appearance; she has freckles on her face and hands with several small pigmented nævi on the limbs and neck; the head is small (cranial capacity, 1079 c.cm.; cephalic index, 0·79). The teeth are regular though the enamel is poor and the gums septic. The breasts are fairly well developed and menstruation has until recently been regular. The pupils react to light rather slowly and the ocular fundi are normal; slight coronary cataracts were observed by Dr. A. V. Taylor on examination with a slit lamp. The patient was neurologically investigated by Dr. S. Nevin, who reported that, although all tendon reflexes were exceptionally brisk, there was no definite sign of a pyramidal lesion. The urine contains phenylpyruvic acid.
5. Female; sister of IV. 4; b. 1897; aged 38 now; normal.
6. Male; husband of IV. 5; normal.
7. Female; sister of IV. 4; b. 1900; idiot; never learned to talk but could say one or two words which she used for anything and everything; no fits; unable to walk but showed no definite signs of paralysis; unable to attend to herself; died aged 15.
8. Male; brother of IV. 4; born 1903; aged 32 now; railway clerk.
9. Female; wife of IV. 8; normal.
10. Twins; sibs of IV. 4; b. 1906 — (i) Male; died in convulsions aged 14 days.
11. Twins; sibs of IV. 4; b. 1906 — (ii) Female; aged 29 now; in domestic service; normal intelligence; phenylpyruvic acid absent from urine.
12. Female; sister of IV. 4; b. 1909; aged 26 now; works for a newsagent; normal intelligence; no phenylpyruvic acid in urine.
13. Female; normal.

14–17. Males; normal.

18. Male; b. 1930; normal.

GENERATION V

1. Male; b. 1924; normal.
2. Female; b. 1930; normal.
3. Female; b. 1926; normal.

delusions during the involutional period and the paternal grandfather showed similar signs during senility. The pedigree dealt with in the present communication contains six relatives who showed definite signs of insanity, of which the mean age of onset was about 50 years. Three of these individuals (II. 2, II. 4, and III. 9) were certainly carriers of the gene which produced idiocy in their homozygous offspring. For two of the remaining three (III. 2 and III. 7) the chances in favour of their being carriers are two to one and the chances that III. 10 is a carrier are even. The hypothesis may be advanced that the gene for phenylketonuria is not completely recessive, but that it exerts an influence upon the heterozygotes—the carriers—which predisposes them to mental breakdown. Although the homozygous individuals—the aments—are rarities in the general population, the carriers are much less infrequent and it is possible that a significant proportion of mentally disordered persons may belong to this class.

SUMMARY

The pedigree of a case of phenylpyruvic amentia (phenylketonuria) has been recorded which demonstrates the mode of inheritance of this condition. A single recessive gene is held to be the cause. Not only does this gene cause amentia when present in the individual in homozygous form, but the heterozygotes or carriers show a marked tendency to develop insanity in the involutional period of life.

The investigation was carried out under the auspices of the Medical Research Council and the Darwin Trust. I am much indebted to Miss D. E. Newlyn for obtaining details of the family.

NEW INVENTIONS

APPARATUS FOR NASAL IONISATION

THE apparatus shown in the figure is a modification of that of Mr. Philip Franklin. It consists of a spectacle frame into which fit two nasal electrodes. The advantages claimed for this apparatus are as follows:—

1. It does away with the band which in Franklin's apparatus fixes the electrodes to the patient's head and keeps it in this position for about twenty minutes. My patients used to complain greatly of the inconvenience and discomfort caused by the band, both during and for several hours after the treatment.

2. The frame is applied like ordinary spectacles by the patient himself. It rests on the bridge of the nose, the terminals of the frame, therefore, being always in the same line as the nostrils. This makes the fixing of the nasal electrodes of the frame, after their introduction into the nose, a very precise and easy procedure, and one which causes the patient the least possible discomfort.

Mayer and Phelps, of New Cavendish-street, W.1, have made this apparatus for me.

London, W. ARTHUR MILLER, F.R.C.S.Edin.

FRIPP-McCONNEL BED-CLOTHES SUPPORT AND EXERCISER

THIS apparatus has been designed to serve two purposes: (*a*) To keep the weight of the bed-clothes off the patient's feet, and by supporting the soles of the feet, to prevent him getting foot-drop. (*b*) To help him to exercise certain muscles, while lying in bed, so as to shorten his convalescence when he is up.

The illustration shows the side which should be placed against the patient's feet when it is used as a bed-clothes support. It can be tethered to the bed in such a position that the feet rest comfortably against the vertical board, and so the tendency to foot-drop is guarded against. On the other side there is a bar to support the heels and two diagonally placed battens for the pads of the four outer toes. This side should not be used for too long at a time; otherwise a pressure sore may appear on the heels.

The object of using the support in this way is to prevent deterioration of the muscles while the patient is in bed, and to enable him to regain a good balance and posture when he gets about again. He can thus exercise the following muscles: (*a*) The short muscles of the foot and the tibialis group. (*b*) The quadriceps and gluteal muscles, by pressing his knee downwards against the mattress, with the sole of his foot supported. (*c*) The oblique and transverse muscles of the abdomen which are automatically brought into action by this exercise. A piece of bandage should be tied

to the exerciser so that the patient can draw the latter towards him in bed to suit his position.

The support and exerciser can be used with advantage in any case where a patient is confined to bed; but it is particularly useful in long debilitating illnesses when the leg muscles and the sense of balance tend to deteriorate.

Messrs. Down Bros., 21, St. Thomas's-street, S.E., are the makers of the apparatus.

A. T. FRIPP, F.R.C.S.Eng.

NORFOLK AND NORWICH HOSPITAL.—This hospital has a deficit of over £10,000, but owing to the success of the contributory scheme the board has decided to push ahead with the erection of new balconies, and it will probably have to enlarge the X ray department.

MEDICAL SOCIETIES

BRITISH ASSOCIATION OF RADIOLOGISTS

THE first annual general meeting and Congress of this association was held on July 12th and 13th, in the University buildings, Birmingham, and was attended by a large and representative gathering of radiologists.

Dr. JAMES F. BRAILSFORD (Birmingham), in his presidential address, traced the progress of radiology through its pre-war, war, and post-war phases, and paid tribute to the early workers in radiology, many of whom had sacrificed their lives to its development. He outlined the objects of the Association and pointed out that in addition to the annual congress at which radiologists from all over the country may interchange views, the Association will provide a medium of coöperation by which the advancement of radiology may be promoted in its ethical, educational and economic aspects. Dr. Brailsford announced that a Fellowship of the Association had been founded, outlined the rules governing admission to this Fellowship, and said that 14 Founder Fellows had been elected, all of whom had already been honoured with high radiological office by their colleagues.

After the presidential address, on July 12th, a visit was paid to the new buildings at the Birmingham Hospital Centre now in process of erection at Bournbrook, where the plans of the new X ray department were inspected.

In the afternoon the association inspected, at the University buildings in Edmund-street, a representative exhibition of radiograms of bone and joint conditions which had been assembled by the president from his own collection and from those of many other members.

CLINICAL PAPERS

On July 13th Dr. R. E. ROBERTS (Liverpool) opened a discussion on Ante-natal Radiology and described his method of cephalometry as a means of estimating the maturity of the fœtus.—Dr. L. A. ROWDEN, of Leeds, gave an account of his method of pelvimetry. Dr. J. DUNCAN WHITE, Dr. C. L. MCDONOGH, and Dr. G. VILVANDRÉ took part in the discussion which followed.

Dr. J. H. DOUGLAS WEBSTER introduced a discussion on Methods and results with pre- and post-operative radiation in Breast Cancer. He briefly outlined the development of the methods which had been used in a number of centres; and he quoted statistics of his own and of others from which it appeared that the percentage of five-year "cures" might be doubled after a suitable combined course of radiation and operation, as compared with operation results in similar groups of cases. Several recently introduced methods had given better results than the more primitive technique.

Dr. HARRISON ORTON, Dr. F. HERNAMAN-JOHNSON, Dr. G. VILVANDRÉ, Dr. J. E. A. LYNHAM, Dr. RALSTON PATERSON, Dr. W. BARRINGTON PROWSE, and Dr. W. GRIFFITHS contributed to the discussion which followed.

Dr. S. GILBERT SCOTT read a paper on Spondylitis adolescens, its clinical and radiological features and the results of X ray treatment.

REVIEWS AND NOTICES OF BOOKS

A History of Science, Technology, and Philosophy in the Sixteenth and Seventeenth Centuries

By A. WOLF, Professor and Senator, University of London; Head of the Department of History and Methods of Science. With the coöperation of Dr. F. DANNEMANN, Professor in the University of Bonn; and Mr. A. ARMITAGE, of University College, London. London: George Allen and Unwin Ltd. 1935. Pp. 692. 25*s*.

No reviewer will attempt to deal in any detailed manner with this book; its range is too large, while so many of the sections treat elaborately of technicalities that it would require a team of experts to evaluate, just as it has taken the help of a team of experts to produce them. Prof. Wolf attempts to give a full protrait of the mind of the sixteenth and seventeenth centuries, and one has only to think for a moment of those who were the intellectual leaders of the period, of what they attempted and to what they led their successors, to realise that huge as this volume is it can be but a curtailment of facts in many directions. For in those centuries the foundations of modern science and philosophy were laid. But we find in these pages summaries, and in some cases detailed accounts, of much which was most important in that early work, and which, where it was sound, proved to be largely the foundation on which the wisdom of to-day rests. Astronomy, biology and physics, chemistry, economics and statistics, geology and geography, are the obvious headings of the sections, medicine having a chapter to itself, and properly following on the section devoted to anatomy and physiology. And the way in which medicine is dealt with is an example of the treatment of the various subjects. With strict reference to the period under consideration nothing is said of the fathers of the science and art of medicine, and the earliest workers in anatomy and biology referred to are Vesalius, Servetus, Fabricius, Malpighi, Leeuwenhoek, and certain of their contemporaries. The story of Harvey's discovery finds its place under the heading of anatomy, and is told in the barest outline, but, as always, it is thrilling because of first the logical manner of approach, and, secondly, of the wonderful manner in which the inevitable gaps were later closed in accordance with the original theory. The medical protagonists chosen for mention are, among others, Fracastoro, Sanctorius (inventor of the weighing chair), Glisson, Paracelsus, a pioneer in chemistry, the value of whose work escapes general knowledge, Paré, Mayow, Gilbert, the author of *de Magnete*, Van Helmont, John Locke, and Borelli, while the comment affixed to the list, abbreviated here, is that the majority of the famous doctors enumerated were pioneers in other fields of study than pathology. That is a suggestive reflection to-day, when on all hands it is seen how dependent for any live progress scientific medicine is upon the research work of the biologist, the physicist, and the philosopher.

British Scientists of the Nineteenth Century

By J. G. CROWTHER. London: Kegan Paul, Trench, Trubner and Co. 1935. Pp. 332. 12*s* 6*d*.

THIS is a well-written and interesting little book containing the biographies of Humphry Davy, Michael Faraday, James Prescott Joule, William Thomson, and James Clerk Maxwell, with pictures of the heroes at different stages of their lives. What each of them did and what its value has been to succeeding generations is clearly explained in simple language.

Physical Diagnosis

Seventh edition. By WARREN P. ELMER, B.S., M.D., Associate Professor of Clinical Medicine, Washington University; and W. D. ROSE, M.D., late Associate Professor of Medicine in the University of Arkansas. London: Henry Kimpton. 1935. Pp. 919. 35*s*.

THIS volume is a modernised version by Dr. Elmer of a text-book originally published by Dr. Rose in 1917. The book is divided into two parts. The first 200 pages deal with surface anatomy and inspection of the various parts of the body; there follow chapters on palpation, percussion and auscultation, the reflexes, and special diagnostic procedures such as radiology and electrocardiography. The method of approach to clinical medicine here followed should result in a thorough grounding in systematic observation, though some students, who have ample opportunity of examining patients, will probably find a more compact volume on clinical methods more to their liking.

In Part II. the diseases of the respiratory and circulatory systems are discussed in a similar manner to that usually adopted in text-books of medicine. It is dificult to understand the author's reasons for concluding a book on physical diagnosis with some 300 pages dealing with diseases of the chest alone.

The Modern Treatment of Hæmorrhoids

Third edition, revised. By J. F. MONTAGUE, M.D., F.A.C.S., of the Rectal Clinic, University and Bellevue Hospital Medical College, New York, &c. London: J. B. Lippincott Co. 1934. Pp. 318. 21*s*.

IN its third edition Dr. Montague's well-known book on the treatment of hæmorrhoids shows little change. It gives sound instruction as regards pathology, ætiology, and examination procedures. Operation under local anæsthesia is recommended for the majority of cases, the method being either a catgut ligature operation, or a clamp and cautery. In selected cases of single, small internal piles injection is recommended: the author adheres to his previous technique and recommends injection into the pile mass of 10 per cent. cresylic acid in glycerin and water, or 10 per cent. carbolic acid in olive oil. The submucous injection above the pile of the popular 5 per cent. phenol in oil is not described. Dr. Montague retains a chapter on the treatment of internal piles by insertion of radon seeds, but seeing that he has to admit unsatisfactory results in 12 out of 35 cases there does not seem to be much merit in this treatment: nor does there seem to be adequate reason for re-describing certain electrical methods which the author himself does not find particularly convenient or efficient. Chapter XVIII. on the recurrence of hæmorrhoids is unchanged from the previous edition: the author states that the recurrence-rate is greater after injection than after operation but no definite evidence of this is provided. In a new chapter Dr. Montague speaks with enthusiasm of the adoption of rectal avertin anæsthesia: he has now used it for 578 rectal cases, and although he admits that it does not give as good relaxation of muscles as the inhalation methods it has given sufficient anæsthesia for the usual routine operations, being supplemented sometimes with local anæsthesia. No deaths in his cases have been attributed to the use of avertin.

The book will be of interest and value to many physicians and surgeons, particularly to those who have the experience which will enable them to discriminate between the methods offered. A good deal of obsolete matter could with advantage have been deleted. In particular the columns on differential diagnosis (Ch. VIII.) may prove a stumbling block to the ignorant and trustful: thus in a table on p. 94 we are told that carcinoma of the rectum occurs in patients usually over 40 years of age, bleeding being slight and a barium enema showing an obstructive lesion of the bowel. Unfortunately the variants from this neatly outlined composite picture are so numerous that the table is frankly useless.

Die Krebsbehandlung in der täglichen Praxis

By Dr. ALFRED NEUMANN. Leipzig: Weidmann and Co. 1935. Pp. 354. RM.18.

THIS book is an easily written undiscriminating collection of information about cancer. The general symptomatology is briefly considered, as are the diagnostic points when the disease manifests itself in certain sites. A large number of methods of treatment, general and special, are set out with illustrative cases. The book, we learn from the publishers, has been specially written with a view to being of service both to the research worker and the practitioner, and as a voucher for its standing many columns of names of authorities, mostly German, are quoted. Those of our readers to whom the language presents no difficulty will find here a serviceable compendium.

Illustrative Electrocardiography

By the late JOSEPH H. BAINTON, M.D., formerly Attending Physician and Chief of the Cardiac Clinic, Morrisania City Hospital, New York, and Consulting Physician, St. John's Long Island Hospital; and JULIUS BURSTEIN, M.D., Associate Electrocardiographer, Morrisania City Hospital, and Cardiologist to St. Elizabeth Hospital, New York City. London: D. Appleton-Century Company. 1935. Pp. 258. 21*s*.

THIS is an atlas of electrocardiograms intended for the student and the non-specialist. It contains 155 records, made with a string galvanometer instrument and a continuous film camera, and reduced to about two-thirds of their original size. The reproduction is clear, but it would have been more satisfactory to give full size electrocardiograms of shorter length. The accompanying text is simply a description of the records, beginning with a chapter on the fundamental waves and their time relationships, and proceeding through the varieties of normal curve and most of the recognised abnormalities. The latter are interpreted in accordance with accepted canons. Artefacts and multiple abnormalities are illustrated at the end. The book should fulfil its modest purpose well, and may be recommended to students who have no access to the collected records of a reliable electrocardiographic department.

THE LANCET

LONDON: SATURDAY, JULY 27, 1935

THE REPORT ON THE OSTEOPATHS BILL

On another page will be found the report of the Select Committee of the House of Lords on the Osteopaths Bill. It should be noted that the report is unanimous, with no reservations, and this is in itself an achievement little short of astonishing when one considers the differing standpoints from which the members of the committee approached their task. They agree that it emerged clearly from the evidence submitted that osteopathy is not, as is popularly supposed, a craft or art limited to the treatment of maladies or defects of the bones, joints, muscles, and ligaments, by manipulation. In this sphere they have no doubt that qualified osteopaths perform valuable services, and, though they do not say so, it is pertinent to add that bone-setters, with no claims to any special form of qualification, may perform services no less valuable. (Incidentally the committee state that they have not been in any considerable degree influenced by evidence either of cures or of failures, since all methods of healing can provide examples of either.) Osteopathy, however, claims to be a method of healing which is suitable to the treatment of diseases of any description. In spite of the proposed insertion of clauses excluding osteopathy from the practice of "major surgery," midwifery, and anæsthetics, the principal witnesses supporting the Bill, when asked whether they would be willing to delimit the sphere of activities of osteopaths, made it abundantly clear that a claim to treat all diseases is made. It is in fact an alternative system of medicine for which statutory recognition was asked, a system for which there is no scheme of organised education in this country other than an establishment which was characterised in the report of the committee as "of negligible importance, inefficient for its purpose, and above all in thoroughly dishonest hands." The committee reached the conclusion that the claim of the osteopaths to be able to treat all diseases has not been established, and that it would not be safe or proper for Parliament to recognise osteopathic practitioners as qualified, on a similar footing to that of registered practitioners, to diagnose and treat all human complaints. They hold that the question of establishing a register of osteopathy by Act of Parliament should in any case be deferred until the sphere of osteopathy has been defined and a system of education in its principles and practice has been developed in this country in one or more well-equipped and properly conducted institutions.

The answer to the question raised in the course of the hearing as to whether there should be what was described as a "scientific inquiry into the merits and practice of osteopathy" is answered by implication in the reiterated conclusion that "the claim of the osteopaths to be able to treat all diseases has not been established." The recommendation that the Bill be not further proceeded with carries therefore finality which will, it may be hoped, be interpreted as precluding the necessity of expending public money on any further inquiry.

THE DETECTION OF DEFECTS IN SCHOOL-CHILDREN

In the city of New York there are 635 elementary school buildings with about 760,000 children. For every 100,000 children there are approximately 2700 teachers, 40 school nurses, the equivalent of 7 whole-time medical officers, 2 dentists, and 3 dental hygienists. With the aid of a liberal grant from the Metropolitan Life Insurance Company and the coöperation of the city departments of education and health, the American Child Health Association has attempted to ascertain whether the best use is being made of this personnel to detect seriously diseased or defective children and to ensure that their defects are remedied.[1] The investigation was conducted over about 18 months, commencing in January, 1932—i.e., during the period of depression. Attention was concentrated on children about the middle of school life, and on a limited group of defects, viz., defective vision, dental decay, defective hearing, subnormal nutrition, enlarged tonsils, and pediculosis. "Health awareness," a measure of the effect of education in hygiene, was also tested.

The methods of investigation, the results and the conclusions reached, are set out in a report now issued; the methods resemble those which have been described in previous publications of the Association and in the writings of Dr. Raymond Franzen. Large groups of children in fair samples of the city's schools were examined for each type of defect by a selected team. The history of the seriously defective was then traced in relation to their contact with the health organisation and an attempt was made to trace the link in the chain where a breakdown, if any, had taken place—whether the teacher or the nurse had failed to detect abnormality, or the physician had misdiagnosed at routine inspection, or there had been failure to follow up, or inadequate explanation to the parent or neglect or incapability on the latter's part. A fairly large error of detection was found, especially on the side of deficiency as regards malnutrition and excess in tonsillar disease; a lack of standards caused the trivial defects to receive attention to the detriment of the more severe ones; there was an overburdening of the follow-up staff and inadequate understanding between the elements of the machine. Without increasing the annual budget, the whole organisation could clearly be made much more efficient. Dr. Franzen and his co-workers believe that their findings would probably be repeated if similar inquiries were made into the working

[1] Physical Defects: the Pathway to Correction. American Child Health Association, New York, U.S.A. 1934. Pp. 171.

of the service in many other towns; and they make constructive recommendations under each heading.

While the British system, with its whole-time officers working in small teams, is probably less prone to some of the errors recorded in this report, there are probably few areas where deficiencies of a like nature would not be found. The method of inquiry, described here in detail, might well be applied internally by chief school medical officers from time to time as a means of detecting flaws in their machine. In particular the mode of approaching the assessment of nutrition, by screening out the suspects with the help of the A.C.H. index, deserves wider trial in this country than it has so far received. This index, consisting of the ratio of the width of the hips to the difference between arm girth and chest depth, has been fully described by Dr. FRANZEN.[3] Probably few will agree that the selection of children for dental examination can be left to teachers and nurses, as the writers appear to contemplate. This is a branch of school medical work which must be specialised from the beginning at any cost. The report will repay study by all who are doing school medical work, the more so since the value of this service is being widely questioned even among those who are devoting their lives to it.

POST-MORTEM TECHNIQUE AND INTERPRETATION

OVER a century has passed since it was first recognised that many physical signs and symptoms are dictated and can be explained by anatomical changes in organs. This fact plays an important part in the training of the student and is constantly being confirmed by the experience of clinicians who habitually visit the post-mortem room. It is a matter of history that it was the combination of careful study of patients in hospital with that of morbid anatomy that formed the basis of the achievements of such men as HUNTER, LAENNEC, BRIGHT, ADDISON, and HODGKIN, to name only a few. However, during the successive periods when bacteriology and biochemistry were first assuming clinical importance it became the fashion to contrast the so-called "pathology of the living" with the pathology of the dead, with some show of satisfaction that this last was obsolescent. The pendulum is swinging back with the advance as a scientific method of experimental pathology, for it is on the interpretation of the lesions obtained and their comparison with those produced by natural disease that much of the value of this method depends. The revival of interest in morbid anatomy has also been stimulated by the greater precision which has been brought to the diagnosis of structural abnormalities of the internal organs by X rays. This especially applies to the thoracic cavity, where the indications for and end-results of modern surgery and radiotherapy have not yet been fully explored. If there is a difference between the modern attitude to material removed at operation or from the dead subject and that of the morbid anatomists of the past, it is that the outlook now is dynamic rather than static, and it is always as a stage in a process of disease or repair that any abnormality is considered.

As Dr. W. G. BARNARD well says in a pamphlet recently published[1] on the technique of a post-mortem examination, the object of such an examination should be to analyse the changes in each individual organ so as to arrive at a coherent account of the processes which have been active in the body. To enable the worker to do this an orthodox technique has become almost universal. The method advised by BARNARD as "a guide to keen clinicians who themselves undertake post-mortem examinations," and written from the central histological laboratory of the L.C.C. at Archway Hospital, differs but little from that described by Dr. D. R. COMAN[2] as practised in the pathological institute of McGill University; both are based on the classical work of VIRCHOW. There is of course inevitably some variation in practice, as every skilled worker will have his own methods of choice. For instance, COMAN gives the removal of the thoracic organs in toto only as an alternative technique, whereas it is the routine most usually practised in the London teaching hospitals. Such variations have little disadvantage provided the dictum of ORTH is remembered: "the chief requisite of every exact post-mortem examination is that no part shall be displaced from its position until its surrounding parts are established, and that no part shall be taken out by the removal of which the further examination of other parts is affected." BARNARD heads his description by the wise warning "The most important rule of all is: Look before you cut and do not cut unless you can see what you are doing." For workers less skilled it might be well to add—do not cut unless you know *what* you are cutting. BARNARD'S description is short, concise, and adequate and deals only with technique, a brief paragraph being given on examinations for coroners. It seems curious that all reference to special precautions in cases of accident, suicide, or suspected poison should be omitted in COMAN'S much bigger handbook. In other respects this book gives all essential details, and with the clear diagrams supplied should enable any practitioner of average knowledge to go through the motions of a thorough post-mortem without disgrace.

There remains, however, the question whether he can interpret the material displayed. There is in many quarters a view that this is mostly a simple matter—a view that is not shared by experienced pathologists. The East Ham insurance committee recently circularised all such committees in England and Wales on the subject of the arrangements made by coroners for post-mortem examinations. Apparently it is now the policy of the coroner for that area to employ one particular pathologist for all these examinations, whereas in the past, apart from exceptional criminal cases, it

[3] Amer. Jour. of Dis. Child., 1934, xlvii., 789.

[1] Technique of a Post-mortem Examination. By W. G. Barnard, M.R.C.P., M.R.C.S. London County Council. 1935. No. 3121. Pp. 7. 2*d*.

[2] Technique of Post-mortem Examination. Compiled by D. R. Coman, M.D., C.M. Montreal: Renouf Publishing Company. Pp. 47. 6*s*. 6*d*.

was customary to call on the general practitioner attending the case either to perform the examination or at least to be present thereat. The committee concerned expressed the pessimistic view that the post-mortem room is the one place where doctors learn the truth, and that attendance at post mortems provides "valuable opportunities for general practitioners to further their experience of pathology and, in the case of their own patients, often affords them facilities for corroboration in the very real problem of diagnosis." The response to the circular shows that in the main insurance committees are disinclined to accept the suggestion that in normal cases the patient's medical attendant, or the practitioner called to the case, should be selected to perform the post-mortem examination, and that in cases deemed to require the services of an expert pathologist the general practitioner should be invited to be present. Of the panel committees some have decided to support the proposal, while others agree that the practitioner should have the opportunity to attend every such examination while not subscribing to the view that he should necessarily be called upon to perform it. In reply to a question in the House on this matter the Home Secretary pointed out recently that since the passing of the Coroners (Amendment) Act, 1926, it has been open to a coroner to request any legally qualified medical practitioner to make a post-mortem examination and that he has no power to interfere with this discretion.

In a memorandum of evidence to the Departmental Committee on Coroners' Law and Practice now sitting, the British Medical Association notes [3] that coroners are increasingly availing themselves of the provisions of Section 22 of the 1926 Act, under which they can call in specially qualified persons to make post-mortem or other examinations, and the Association makes no suggestion for restricting their freedom of choice in this respect. But it feels that the position of the practitioner who was in attendance prior to death is not fully safeguarded by existing provisions and proposes that (*a*) if he has not been asked to perform a post-mortem he should be given an opportunity of being present, no fee being paid for such attendance; and (*b*) the coroner should have discretionary power to invite the practitioner to be present if he has not been asked to perform the post-mortem and that the statutory fee of one guinea should be paid in such cases. We have every sympathy with the desire of the practitioner to follow his fatal cases to the post-mortem room, but at the same time it is clearly desirable that autopsy should be performed by people who are specially qualified by training and experience for this work. A compromise on the lines suggested by the B.M.A. appears to meet the situation. The educational value of a post-mortem to which the East Ham insurance committee draws attention will be far greater to the practitioner who watches it performed and demonstrated by a pathologist than to one who attempts unaided to solve problems whose wider significance can only be recognised by an expert.

[3] Brit. Med. Jour., Supp., June 22nd, 1935, p. 282.

THE PHYSIQUE OF MAN IN INDUSTRY

THE golden age is always in the past and we can read, almost daily, that the present generation is inferior to its predecessors either physically, mentally or morally—or, indeed, in every way. But the sceptic can remain unmoved by this indictment, and point with justice to the absence of well-founded standards by which we can measure the deterioration alleged. General impressions are apt on occasions to be surprisingly misleading, and with regard to physique the desideratum must be a large and representative body of anthropometric data. The lack of such material in this country was pointed out many years ago by the Interdepartmental Committee appointed after the Boer war to inquire into physical deterioration. They could find no satisfactory evidence to support the belief in a general progressive deterioration, but they carefully underlined the fact that no sufficient material was available for a comparison of the physique of the nation with its status in the past. So far as an anthropometric survey was concerned, however, their report led to no action. Interest was once more widely awakened with the publication of the famous "C 3" report, but as this related to men examined in the last year of the late war, it was rightly held that such a sample could not possibly be taken as representative of the manhood of the country.

This absence of representative data forms one of the reasons which has led the Industrial Health Research Board to initiate a wide and careful investigation into the physique of men in industry, a report upon which has now been issued.[1] The work has been directed by Prof. E. P. CATHCART, F.R.S., and all the measurements were made by two workers, Mr. D. E. R. HUGHES and Mr. J. G. CHALMERS. Between them they have recorded the height, weight, strength of grip, strength of lift or pull, and distance of middle finger tip from the ground of 13,656 individuals—10,593 employed men, 1328 unemployed, and 1735 university undergraduates, drawn from nearly all parts of the country and industries. The very detailed statistical analysis to which this material has been subjected reveals some curious results. For instance, the maximum height seems to be reached at about 20–21 years of age, and after about the age of 25 there is a gradual and fairly steady decline. Is this due, as the report suggests, to the development of a less erect carriage with advancing years, or to an absence of a proportion of the most physically fit at higher ages due to casualties in the war; or is it evidence of greater height in young adults such as has certainly been demonstrated in school children? The unemployed men were found, on the whole, to be a little inferior in weight, and in the tests of strength definitely inferior to their employed brethren. These men had been continuously unemployed for six months and more, and the

[1] Industrial Health Research Board. Report No. 71: "The Physique of Man in Industry." London: H.M. Stationery Office. 1935. Pp. 42. 1s. 3d.

question arises whether their reduction in strength is a consequence of their enforced idleness or whether they represent the unemployable—the last to be employed when work is abundant, and the first to be discharged when work is scarce. The authors of the report conclude that the sample measured by them is drawn from the latter class and is, therefore, unrepresentative of all the unemployed.

The most striking characteristic of the measurements when divided into occupational groups is the uniform superiority in height of the "black-coated" group. In tests of strength, on the other hand, they did not excel and their strength of pull was definitely inferior to that of men in manual occupations. Geographically, London men are in their average height and weight definitely above the employed group as a whole—perhaps the result of selective migration of the more physically fit from the country districts. In spite of their extent, the data are not sufficient to determine how far heavy industries attract men of superior physique, or to what extent mechanisation has equalised the demand for brawn and muscle, and no satisfactory index of physical fitness has been evolved from them. But these sample figures are likely to prove the first approximation to the standard we need to determine whether the physique of entries to industry is being maintained, improved, or is deteriorating. In their collection Prof. CATHCART and his associates seem to have been granted willing assistance by the employers approached, and it is satisfactory to note (as evidence opposed to national deterioration mentally) that they are spared the explanation of failures given by Dr. BEDDOES, engaged on the same quest in 1870—namely "in Scotland to greed of time or to superstition; in Ireland to carelessness or to political feeling; in Wales to suspiciousness; and in England to stupidity"!

ANNOTATIONS

MILK PROCESSING AND CONTROL

IF civilisation may be defined as the conscious pursuit of quality, the City and Guilds of London Institute, in collaboration with representatives of the dairy industry and assisted by a strong advisory committee, have taken a notably civilised step in devising and issuing syllabuses for examinations in "Milk Processing and Control."[1] There can be no doubt that if their action is adequately supported by the dairy industry, there will be in course of time a steady increase in the competence and number of technical men now urgently needed for the effective operation and control of processing and manufacturing plant in all branches of the milk industry, and an accompanying improvement in the general standard of quality of our processed milk and manufactured milk products.

The syllabus and regulations embrace two examinations (i) one of "intermediate" grade for which a preparation period of five hours per week in a technical institution during the winter sessions of each of two years—i.e., some 200 hours altogether of lectures and practical instruction—is suggested as reasonable, and for which the syllabus includes some elementary chemistry, elementary physics and simple microbiology, and (ii) a final examination, open to those who have passed the intermediate examination, in (*a*) milk processing and milk products manufacture (pasteurisation, sterilisation, ice cream, condensed and dried milk products) and/or (*b*) the chemical and bacteriological control of milk and milk products, in the latter case clearly intended for those who are to work in fairly responsible technical positions in dairy industrial laboratories, or in laboratories outside the industry dealing with the control of milk and milk products. For the final examination, either (*a*) or (*b*), a period of study covering a further period of two years is suggested as advisable. The British Dairy Farmers' Association, in conjunction with the University of Reading, have had satisfactory courses of instruction in dairy running for some time, but the processing and manufacturing industry has been without similar provision for technical education. It is clearly to the advantage of all concerned—to the milk producer, to the distributor or manufacturer, to the consumer, and to the individual himself—that any person who is in charge, say, of a pasteurisation plant or an ice-cream plant shall have had at some time a reasonable training in the elements of science as applied to what is, nowadays, a highly technical job. The costly and complex plant used to-day, requires and demands knowledge and technical ability in increasing measure as its capacity and complication increases, and these are required not only for the laboratory control of the product at every stage but for the proper running and economical maintenance of the plant itself. In pasteurisation, for example, a process of first importance from the public health standpoint, it is impossible not to realise that, with some outstanding exceptions, the level of technical knowledge and ability displayed by the men in technical charge of the plant has little relationship to the high quality of the plant itself or to the amount of capital invested in it. As a result, the word "pasteurised" on the bottle of milk in the consumer's hands is in too many cases grossly misleading, as was clearly brought out in our columns recently by Prof. H. D. Kay, and Mr. F. K. Neave.[2]

[1] Pamphlet 87, obtainable from the Superintendent, Department of Technology, City and Guilds of London Institute.

THE ANATOMY OF THE HAND

STUDIES in the anatomy of the hand and its relation to infections have recently been undertaken by a group of workers in the University of Lille. Prof. Cordier, with the help of M. Coulouma, has made careful dissections of the hand, supplemented by injections of plaster, barium, and lipiodol, and subsequent radiography.[3] [4] He has come to the conclusion that in the upper part of the palm of the hand is to be found a compartment corresponding to each finger. The thenar space corresponds to the thumb, and its medial limit is more usually the second metacarpal than the third. Each digit is represented by a space, that of the index being well separated from the others. In the case of the other digits septa run forwards and backwards from the tendons, thus creating pre- and retro-tendinous compartments. The septum running back to the third metacarpal is especially constant. In the lower part of the palm have been found two

[3] THE LANCET, June 29th, 1935, p. 1516.
[4] L'Echo Medical du Nord, 1934, i., pp. 513 and 545.
[4] Revue de Chirurgie, 1934, liii., 563.

channels, one for the lumbrical muscle and one for the tendons. In the case of the thumb the adductor carries a sheath and thus acts in much the same way as a lumbrical muscle. Thus each finger may communicate with its own palmar compartment, whilst the little finger communicates also with the hypothenar space and the thumb communicates with the thenar space and with the compartment for the index. The compartments for the index and middle fingers communicate with the thenar space via the branches of the median nerve. The practical application of this work is to emphasise once again the necessity for early operation in infections of the fingers tending to track towards the palm, so that the correct incision may be made before the pus has ruptured from one compartment into another. The incisions for opening up the lumbrical canal and the tendon sheath correspond with those recommended by A. B. Kanavel.[5]

SOME ASPECTS OF GLAUCOMA

THIS is the title of a lecture recently given by Mr. R. Affleck Greeves.[6] Many years ago Mr. Treacher Collins demonstrated structures in the ciliary body resembling glands, and suggested that they actually do secrete the fluid known as the aqueous humour. This theory has never been generally admitted, and of late years has gone very much out of favour. Mr. Greeves writes: "The points of similarity in structure between the ciliary processes and the choroid plexus of the brain are, in my opinion, strongly suggestive of a similarity in function, and therefore of a probable secretory element in the fluid production in the eye." Most modern authorities hold that the aqueous is not a secretion but a dialysate, and that the part played by its circulation and the integrity of its channels of egress in the pathology of glaucoma is comparatively slight. Mr. Greeves considers, on the other hand, that the time-honoured custom of laying the blame for abnormally raised tension on the non-functioning of these channels is fully justified. On the question of diagnosis his attitude is also conservative, but he confesses that he is himself old-fashioned enough to put more trust in the trained digital sense of the expert ophthalmic surgeon, coupled with accurate fundus and field examination than in any tonometer. The fact of abnormally high tension being established, the difficulty remains of determining whether the glaucoma is primary or secondary. The presence of keratitis punctata establishes the diagnosis at once, but often, in the presence of a glaucomatous haze of the cornea, it is impossible to be sure whether or not it is actually there. The point is of vital importance because in primary glaucoma the first essential in treatment is to insert a miotic; in glaucoma, secondary to iridocyclitis, such treatment will probably make matters worse and a mydriatic may be indicated. The depth of the anterior chamber is a most important point in diagnosis, but a shallow chamber is not enough by itself to determine that the glaucoma is primary. Mr. Greeves expresses the view that some of the cases of congestive glaucoma with shallow chamber may be a mixture of primary and secondary glaucoma. In deciding on the treatment of such a case, the depth of the anterior chamber is of primary importance; if it is deep a mydriatic may be used with benefit and impunity, but if it is shallow, shallow miotic treatment is indicated.

Many other aspects of the glaucoma problem are discussed in this interesting lecture. Mr. Greeves divides primary glaucoma into two main groups: the first comprising cases of acute, subacute, and chronic subacute glaucoma, with either pain, rainbow haloes, or misty vision; the second includes chronic simple cases with no subjective symptoms beyond gradual failure of vision and field, the patient being often unaware that the vision of one eye is gone until the other begins to go. In the first, or congestive group, a strenuous attempt should always be made to reduce the tension by treatment before an operation is undertaken; the prognosis after operation as regards visual acuity, he says, is infinitely better "if one has succeeded in reducing the tension beforehand than if one is forced to operate on a congested hard eye, quite apart from the danger of convulsive hæmorrhage." The details of treatment, both non-operative and operative, set out by Mr. Greeves, are well worth study, as is also the section on diagnosis by field and disc examination of cases of simple chronic glaucoma, in some of which even raised tension may be absent at the actual times when the consultation takes place. His comments on the causation and pathology of these cases are original and important. He believes firmly that the true explanation of simple glaucoma is failure in function on the part of the filtration angle of the anterior chamber, and in this connexion recalls an observation of Mr. Thomson Henderson's that the fibres that lie between the root of the iris and Schlemm's canal normally undergo a thickening as age advances, thus tending to obstruct the channel through which the aqueous finds a normal exit, and so predisposing to glaucoma during advancing age. The weak point of Henderson's theory appears to be that if it were true presbyopes should be much more subject to glaucoma than they are in practice. Mr. Greeves supplements the theory by the suggestion that in some people a congenital anomaly may cause these fibres to be unusually tough, or that the process of thickening may be abnormally hastened during the presbyopic period.

To the older men who learnt ophthalmology at Moorfields it will thus bring some satisfaction to learn on the authority of a well-known member of the present staff that the teaching that they received in their student days on glaucoma is not yet entirely superseded.

STUDIES IN HAY-FEVER

SEVEN original articles on hay-fever are to be found in *Nordisk Medicinsk Tidskrift* for June 1st. The first of them, properly enough, is a historical retrospect and an Englishman enjoys pride of place in it. But since Bostock presented his report on hay-fever to the Medical and Chirurgical Society in London in 1819 much has been learnt of this disease, and it is now remarkably amenable to specific treatment provided doctor and patient exercise foresight and patience. This is, at any rate, the opinion of Prof. K. Hansen, of Lübeck. He claims that with prophylactic subcutaneous injections of pollen antigens he has succeeded in curing or relieving over 90 per cent. of the 961 patients treated in 1932 and 1933. During the past four years he has used a mixed standard preparation containing extracts of all the pollens found to be pathogenic in Central Europe; and though he deplores his departure from the narrow road of strictly specific treatment—according to which he should inject only that antigen which skin tests have convicted for the particular case—he has found material considerations an irresistible inducement to the use of polyvalent mixtures. Only

[5] Infections of the Hand, London, 1934.
[6] Irish Journal of Medical Science, June, 1935, p. 241.

when these fail does he recommend a special search for some rare pollen antigen as a cause of hay-fever. The journal also contains a study by Dr. P. Vallery-Radot and Dr. G. Mauric, whose work in Paris on asthma and hay-fever has centred on their reactions to artificial fever. Their thesis, which they support with details of an illustrative case, is that above a certain thermal threshold asthma and hay-fever can be aborted by fever, and that immunity to offending pollens can be acquired if, during an attack of artificial fever, the patient is made to inhale such pollens in large quantities. The preparation with which they have induced fever is a 1 per cent. solution of sulphur in oil, 2 c.cm. of which is given by intramuscular injection. In the case in question immunity to hay-fever was promptly acquired by this measure, the patient remaining free from oculo-nasal symptoms for the rest of the summer. In another paper, Dr. K. H. Baagöe of Denmark refers to his experience with 52 cases of hay-fever, and to the effects of prophylactic injections of an extract of pollen given twice a week for two months before the hay-fever was due. Considerable benefit was obtained in 14 cases, and none in 6. Dr. Arno Saxén of Helsingfors draws attention to the remarkable rarity of severe hay-fever among his compatriots in Finland, but is able to suggest no explanation of it.

LEAGUE OF NATIONS AND NARCOTIC DRUGS

THE advisory committee on traffic in opium, at its twentieth session under the chairmanship of Dr. Carrière, the representative of Switzerland, reviewed the present situation in regard to the international traffic in dangerous drugs. While it is claimed that the licit production of narcotics now approximates to the legitimate requirements of the world, illicit traffic has not diminished and clandestine manufacture is going on both in the West and in the East. More drastic measures, such as the appointment of special police to track down clandestine factories, the infliction of heavier penalties for traffickers, and better international coöperation were considered and referred to the Secretariat for report to the next meeting. It appears that only three countries of Latin America have this year furnished reports required under the conventions. The Limitation Convention of 1931 has now been ratified by 53 governments, recent signatories being New Zealand, Japan, Panama, and Ecuador. As regards China, Mr. Hoo Chai Tsai reported new regulations adopted in April, 1935, whose Draconian severity appears to have shocked some of the delegates. There is to be compulsory treatment for drug addicts; if in 1936 there are any remaining untreated they will be imprisoned for five years and undergo the compulsory cure. After 1937 the penalty for the non-medical use of narcotic drugs will be death or imprisonment for life. The use of opium prepared for smoking is to cease by 1938. It was reported that more than 597 special hospitals for smokers and addicts had been established by the government in China; and it was claimed that no fewer than 81,344 cures had been already effected. Poppy cultivation is to be prohibited in some provinces and reduced in others until, in six years' time, it is hoped that it will be completely abolished. Those who recall the previous efforts in this direction some seventeen years ago, and the subsequent regrettable reversion to the extensive cultivation of the poppy, may regard these anticipations as over sanguine, while recognising the good intentions of General Chiang Kai Shek and the Chinese Government. Meanwhile the Japanese Government has authorised Dr. Somei To to report on 150,000 opium smokers in Formosa and the mortality and criminality of such addicts. The statistical results are receiving the attention of the advisory committee.

The Permanent Central Opium Board also met in Geneva last month, under Mr. Lyall's chairmanship, and discussed the legal position created by the production of morphine from "poppy straw." They invited the views of the advisory committee on the new situation which has thus arisen.

RADIOLOGICAL DIAGNOSIS IN THE ACUTE ABDOMEN

Dr. Irving W. Ponemon,[1] of Jamaica, is convinced of the importance of X ray examination in the differential diagnosis of the acute abdomen. He contends that its use is an additional safeguard against such serious errors as the performance of laparotomy for the abdominal pain which accompanies the onset of some cases of pneumonia; delay in opening the abdomen in the less typical cases of intestinal obstruction or perforation of ulcers; and confusion of the generalised pain of coronary thrombosis with that of perforation of a viscus. He cites examples where radiology has been of definite value. The histories of two children are contrasted, each aged five years. The onset of illness in both was with a cold, abdominal pain and vomiting appearing four or five days later; both children were found to have abdominal rigidity, and no signs in the chest were discovered in either. In one child the X ray showed evidence of commencing consolidation at the right base, while in the other child it was negative. The second child was submitted to operation when perforation of an inflamed appendix, with peritonitis, was found; the first child recovered from its pneumonia. In another case, quoted by Ponemon, radiology disclosed an unsuspected subphrenic abscess as a complication of cholecystitis and calculus, thus materially affecting the operative procedure. The localisation and appearance of distended coils of intestine can give valuable information. In one instance, distended coils in the lower right quadrant of the abdomen clinched a rather uncertain diagnosis of appendicitis. Gaseous distension with fluid levels underlying the collections of gas provides a sign almost pathognomonic of intestinal obstruction; but Ponemon believes that it is possible to detect in an X ray the evidence of a localised distension of a *single* loop in the early stages of an obstruction, thus giving the patient the chance of early operation. The appearance of a collection of gas under the dome of the diaphragm is, of course, a most useful piece of evidence in the detection of a gastric or duodenal perforation; especially in a case seen either during the stage of reaction (when all pain may temporarily disappear) or when, as a rare occurrence, the perforation has sealed over, leaving the diagnosis resting on a rather indefinite history. Where the possibility of coronary thrombosis is under consideration in the differential diagnosis of perforation, the importance of the demonstration of the presence of free gas in the abdominal cavity is obvious.

The main drawback to the use of radiology in these acute illnesses is the extra strain it puts on the patient. An X ray in the supine position is almost always possible, but for the detection of fluid levels and for the examination of the diaphragm the upright position is usually necessary, and experience shows

[1] Amer. Jour. Surg., 1935, xxviii., 122.

that this may involve considerable difficulty. Ponemon considers the sitting position satisfactory; but this may give a very imperfect picture of the abdominal cavity, as the plate has to balance on the patient's lap. In most cases the disadvantages of submitting the patient to the strain of a radiological examination may outweigh the advantages, but the possibility that such an examination may clinch a difficult diagnosis should be remembered.

COLOUR VISION

An important contribution to the study of colour and colour vision has just been published by the Medical Research Council.[1] The abundant literature on this subject mostly deals with qualitative investigations and results; in this research by Mr. F. H. G. Pitt, which represents a continuation of the work of Mr. L. C. Martin, D.Sc., and Mr. W. D. Wright, Ph.D., at the Imperial College of Science and Technology, it is the quantitative factor which has been particularly studied, with fruitful results. The apparatus used was a slightly modified form of the Wright colorimeter—an apparatus of a high degree of accuracy, designed by Dr. Wright and used by him in his redetermination of the trichromatic mixture data,[2] and the object was to determine the colour coefficient, luminosity, and hue discrimination data for dichromatic observers and to compare them with those for normal observers.

In the first investigation the red and blue primaries were used for deuteranopes, and the blue and green for protanopes, the data of these latter being transformed for comparative purposes so that the coefficients were referred to blue and red primaries; this was deemed necessary owing to the low degree of protanopic luminosity at 0·65 μ. The colour standard was a spectral colour at $\alpha = 0{\cdot}494\,\mu$, the units being so chosen that the colour had equal amounts of each primary. The energy source was a standardised 1000 watt gas-filled lamp, the modified beam being reflected into the field from a white magnesium oxide screen. The eyes of the observers were dark-adapted before experimentation and each match was repeated three times.

The two main curves for the protanopic and deuteranopic groups are very similar, the only difference appearing from about 0·51 μ to the red end of the spectrum. It was found that the blue coefficient for the standard white is greater for the protanope than for the deuteranope; and by deduction, that all colours possible to dichromatic vision can be seen by dichromats in the spectrum. In the determination of luminosity data measurement was made of the luminosity curve of the ordinary spectrum, and of the spectral energy distribution; and the luminosity curve for an equal-energy spectrum was calculated. For the first investigation a flicker photometer was used with light from the blue primary only, flicker being eliminated by means of a neutral wedge. The separation of protanopes and deuteranopes by this means was quite distinct, overlap of even the extremes of each group not occurring except from 0·48 μ to the violet end. For the complete calculations and results of the remainder of this part of the investigation reference must be made to the report.

The measurement of hue discrimination curves was based on experiments in which by slow movement of the test colour prism in each direction the two halves of the field were made just perceptibly different; half the difference beteween the readings gave one colour step, allowance being made for variation in the length of the steps throughout the spectrum. It was found that the curves of six deuteranopes formed a well ordered set, whereas the protanopic curves were not so consistent; the mean curve for this group does not therefore represent the average so accurately as does that for the other group. The conclusions reached were that the discrimination of the deuteranope and the normal trichromat is approximately the same in the blue-green, and that the discrimination of the protanope is not so good as that of the deuteranope, nor is his range of discriminable colour so large.

In the remaining sections of the report consideration is given to saturation, qualitative tests, the work of previous observers and the theoretical considerations in connexion with colour vision, together with the bearing of the present dichromatic measurements on these theories. From a consideration of colour triangles the conclusion is reached that deuteranopes can distinguish only 15 colours, and protanopes 12, when the intensity is uniform, the corresponding figure for a normal trichromat being 43. Moreover, if 500 trichromatic colours were included the number for the dichromat would only increase very slightly. In an appendix Mr. Pitt records the results of an investigation of anomalous trichromats (those whose colour system is a function of three variables but whose matches differ from the normal). The investigation was done on green anomalies only, and no definite conclusions are drawn. Another appendix, by Dr. Wright, is concerned with the advisability of regarding the eye of the normal and colour-blind observer as two entirely unrelated pieces of apparatus, and with the position of the anomalous trichromat relative to the normal trichromat and the dichromat.

The value of the information here set out is, as Dr. Wright says, twofold. It enables us to determine exactly by how much one colour will differ from another, and understand the extent to which colours that appear distinct to the normal eye will be confused by the so-called colour-blind eye; and it also provides us with further material on which to develop a theory of colour vision and colour blindness.

NUTRITION AND LEPROSY

The fact that *Bacillus* (or *Mycobacterium*) *lepræ* does not fulfil Koch's postulates has at times given rise to much discussion of its ætiological significance. Few will now be found to dispute its claim to be the cause of the disease, but clearly there are many other factors which play an important part. It is almost an axiom that the healthy adult does not acquire leprosy unless he comes into close and very prolonged contact with the disease, and if he does his resistance probably has to be lowered before dissemination of the organism is clinically manifest; but the same rule does not apply to children and adolescents, because there seems to be an added susceptibility during the growing periods of life, when metabolic activity is at its height. How far the risk is affected by diet is a question that has long been debated. Sir Jonathan Hutchinson, it will be remembered, laid the whole responsibility on putrid or badly cured fish; he said that "the fundamental cause in the malady known as true leprosy is the eating of fish in a state of com-

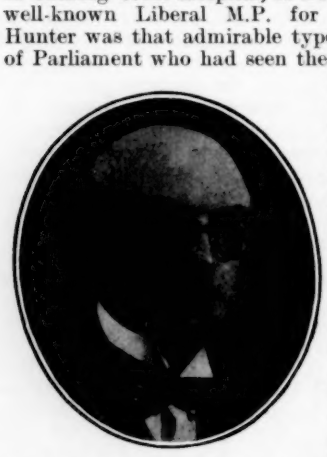
[1] Characteristics of Dichromatic Vision (Report XIV. of the Committee upon the Physiology of Vision). By F. H. G. Pitt. Medical Research Council, Special Report Series No. 200. 1935. Pp. 58. 1*s.* 3*d.*

[2] Medical Research Council, Special Report Series No. 139, 1929.

mencing decomposition."[1] Like many others which contain an element of truth, this theory was widely quoted, and since Hutchinson's time workers have constantly laid stress on the need for a proper diet. A recent observation by Atkey[2] is that the milk-drinkers of the Sudan have very little leprosy. Again, it is known that the incidence of leprosy is much higher in South Korea, where the diet consists chiefly of carbohydrates, than in North Korea. It is the lack of a balanced diet, with associated vitamin deficiency, that appears to be of greatest detriment, and it is interesting to note that, other things being equal, there is usually a high incidence of leprosy among people who subsist on a diet containing excess of carbohydrate—e.g., the cassava-eating people of the southern Sudan. Recently Lee[3] has drawn attention to a reduction of gastric acidity in leprosy, pointing out that the more severe and long-standing the skin lesions, the more definite the hypochlorhydria. It must be borne in mind, however, that leprosy, especially the cutaneous variety, is a systemic disease and that where the skin is involved the bacilli have invaded the whole reticulo-endothelial system, producing lowered resistance of the whole organism. This process must lead to more or less cachexia, and it seems probable that Lee's findings could be explained as due to general decline in bodily functions, and that low acidity should not be invoked as a cause of the nutritional failure which encourages infection by the leprosy bacillus. If light could be thrown on the reasons for the dissemination of the bacilli through the body, it might be possible to raise the resistance of the patient appropriately and so check the progress of the disease. Meanwhile it can hardly be doubted that an adequately balanced diet with suitable content of vitamins does much to improve the chance of recovery.

DR. JOSEPH HUNTER, M.P.

WE regret to learn of the death, on Tuesday last, in Charing Cross Hospital, of Dr. Joseph Hunter, the well-known Liberal M.P. for Dumfriesshire. Dr. Hunter was that admirable type of medical Member of Parliament who had seen the working of medicine reflected on general society in numerous official capacities. He graduated in medicine at Edinburgh in 1898 and became resident physician at the Royal Infirmary, Edinburgh, when he joined the South African Field Force as a civil surgeon, gaining the Queen's medal with clasps, and showing himself a highly competent officer. Thereafter he took the diploma of D.P.H., and served as medical officer of health and police surgeon to the borough of Dumfries, and was also physician to the Dumfries and Galloway Royal Infirmary. After 20 years of official medical work he entered Parliament as the Liberal Member for Dumfriesshire in 1929, displacing with a great majority the sitting Conservative Member. At the next General Election he held his seat against a Liberal opponent, and this time with a very large majority, a clear example of the recognition by a large community of the value of his local services, and of the ability with which he fulfilled his responsibilities. In 1929 he became the Scottish Liberal Whip, and in 1934 was appointed organiser of the Liberal National Party. Dr. Hunter will be deeply missed from the circle of politics where he played so prominent a part as well as by many friends and colleagues.



[1] Hutchinson, J.: Leprosy and Fish Eating. London, 1906, preface, p. v.
[2] Atkey, O. F. H.: Internat. Jour. Leprosy, 1934, ii., 193.
[3] Lee, H. S.: Jap. Jour. Dermat. and Urol. (English abstr.), 935, xxxvii., 88.

THE NEUROLOGICAL CONGRESS

ON Monday next the second International Neurological Congress opens in London under the presidency of Dr. Gordon Holmes, F.R.S. Sir Charles Sherrington had been elected at last year's preliminary conference, but was unable to undertake the arduous duties on grounds of health. The congress sits in the large hall of University College, Gower-street, from Monday to Friday, the morning sessions being devoted to set discussion of four main topics: (1) Monday (morning and afternoon)—The epilepsies, their ætiology, pathogenesis and treatment (chairmen, Prof. O. Marburg and Prof. O. Rossi). (2) Tuesday—The physiology and pathology of the cerebro-spinal fluid (chairman, Prof. O. Foerster). (3) Thursday—The functions of the frontal lobes (chairman, Prof. H. Claude). (4) Friday—The hypothalamus and the central representation of the autonomic system (chairman, Prof. B. Brouwer).

At the three afternoon sessions, which will sit in seven groups, nearly 300 papers will be presented. On Wednesday evening at 9 Prof. Foerster will give the triennial Hughlings Jackson memorial lecture (on the Motor Cortex in Man in the Light of Hughlings Jackson's Doctrines) under the auspices of the section of neurology, Royal Society of Medicine, and this section will hold a reception later in the evening. Other receptions will be held by the Ministry of Health and the presidents of the Royal Colleges. The official banquet is on Thursday evening at Grosvenor House. Wednesday has been left free. The secretary-general of the congress is Dr. Kinnier Wilson.

THE Princess Royal has appointed Dr. L. F. R. Knuthsen, C.V.O., to be her physician-in-ordinary.

THE death is announced of Mr. Arthur Shillitoe, F.R.C.S. Eng., a well-known authority on syphilis.

THE peerage conferred upon Sir Hilton Young in the Birthday Honours is gazetted under the title of Baron Kennet, of the Dene, in the county of Wiltshire.

NEW SUSSEX HOSPITAL FOR WOMEN AND CHILDREN.—The latest addition to this hospital, which was the first in the country to be entirely officered by women doctors, is a nurses' home which is being erected in the grounds on the west side, and it is hoped that the completed building will be opened in November. The foundation stone was laid on July 18th by Miss Louisa Martindale, who said that it was an unusual task for a member of the honorary medical staff but she accepted it as a mark of appreciation of the hospital's medical and surgical work and of honour to her mother, the founder of the hospital. Her mother realised the demand there was in Sussex for a hospital in which women patients could be treated by members of their own sex, and foresaw how long they would have to wait if they were to depend upon the existing hospitals appointing women to their staffs. The hospital is open to professional and other women of small means who are unable to pay the expensive fees of a nursing home.

PROGNOSIS

A Series of Signed Articles contributed by invitation

LXII.—PROGNOSIS IN HEART-BLOCK

HEART-BLOCK is the term used to indicate a disorder of the function of the heart, notably imperfect conduction of the impulse. The term includes several types of disturbed function of varying degrees of severity, occurring in different sites.

From the point of view of prognosis one can exclude *sinu-auricular block*, which is extrinsic in origin, being due to depression of the formation of impulses at the sinu-auricular node by an increased vagal tone. Thereby the rate of the heart may be halved; but there is no prognostic significance to be attached to this aberration, which is wholly nervous in origin, and not indicative of myocardial disease. *Intra-auricular* block is not recognisable clinically. There remain: (1) *Auriculo-ventricular block*—(*a*) partial, with or without dropped beats; (*b*) complete heart-block. (2) *Intraventricular block.*

IMPORTANT FACTORS

The prognosis of heart-block in general must be considered with two points in mind: (1) the functional efficiency of the heart in which the lesions are found; (2) the liability for auriculo-ventricular block to be associated with syncopal attacks (Adams-Stokes). Many patients die from heart failure without developing heart-block at all; and some patients live for years with heart-block, and finally die from some condition that has nothing to do with the heart. Heart-block may be due to some local lesion; it may only be evidence of inefficiency in one small part of the heart, and this particularly applies to auriculo-ventricular block. On the other hand, the local lesion may be a part of general myocardial disease. In the assessment of prognosis, the efficiency of the heart as a whole in its response or lack of response to extra demands made upon it is the real ground upon which the prognosis must be based. It is necessary to emphasise the fact that the search for one particular prognostic sign may easily lead to fallacy. Heart-block when present must be fitted into the clinical picture and not singled out for too much attention. Its importance varies to some extent with its ætiology, in so far as this may have a bearing upon the presence or absence of general myocardial disease.

Partial heart-block without dropped beats can only be recognised with certainty by graphic methods. Dropped beats may usually be detected by auscultation, except when the rate of the heart is fast, and the varying degrees of delay in auriculo-ventricular conduction, together with numerous dropped beats, may make diagnosis difficult owing to the very irregular rhythm produced. Partial heart-block does not in itself affect the efficiency of the heart unless many beats are being dropped, when syncopal attacks may occur. In toxic conditions, such as diphtheria and rheumatism, it will probably clear up as the cause disappears. When syphilis is the cause the prognosis is apt to be influenced by the grave effects that accompanying aortic lesions may produce. In such cases there is considerable liability for higher grades of block to be set up, and Adams-Stokes disease (see below) may supervene. In elderly people, where arterial disease is almost always the cause, the degree of block may remain unchanged for years. But in some cases there is a tendency for the block to increase as the disease progresses. When auricular fibrillation is present, a certain amount of auriculo-ventricular block may be an advantage, for it will keep the ventricular rate slow without the use of digitalis.

Complete heart-block is usually easy to recognise clinically, especially if the patient's heart-rate be tested by injection of atropine, or if he can be exercised. The failure to respond by marked increase in rate is pathognomonic. Complete heart-block is not always associated with gross incapacity, and does not necessarily carry a bad prognosis, especially if Adams-Stokes attacks are absent. In some cases the rate, which may vary between 30 and 55 beats per minute, is not very slow, and is compatible with a fair degree of efficiency. Some patients live for years if no other signs of defect develop. In most cases, however, there is also widespread disease which causes heart failure.

Congenital complete heart-block is a rarity, and is usually associated with patency of the interventricular septum. The rate of the ventricles is usually faster than in the acquired lesion. Provided the septal defect does not affect the function of the heart unduly, those patients are often able to be fairly active and grow up to adult life. As is the case with all congenital lesions, secondary infections at the site are apt to occur.

Intraventricular block, which means delay or block in one or other of the two branches of the bundle of His, or delay in the spread of the impulse over the Purkinje system, can only be demonstrated by an electrocardiogram. Intraventricular block when present as bundle-branch block does not necessarily indicate anything but a local lesion. But mostly there is widespread disease as well. The efficiency of the heart is not affected by the local lesion in the branch of the bundle itself. Some patients survive and even lead an active life for years, but on the whole the association of myocardial disease with intraventricular block is not propitious, and those who show signs of heart failure only last a year or two. The same outlook applies to the type of curve denoting intraventricular block in the Purkinje system. Here again the majority of patients are suffering from gross lesions with more or less impaired efficiency. For the most part failure is likely to occur soon, and when it shows itself a short span of life is all that can be expected.

THE ADAMS-STOKES SYNDROME

The sudden loss of consciousness characteristic of Adams-Stokes attacks may manifest itself when first the obstruction in the bundle of His is complete, and there may be a pause before the ventricles beat with their own slow rhythm; again, when the block has already been present for some time, interference with the activity of the new pacemaker may cause extreme slowing or standstill. These attacks are dangerous for two reasons. The standstill may lead to sudden death, or the fall, without warning, in some dangerous place or in traffic, may give rise to serious injury. But the liability to these attacks may be transient, and once the patient is free from them they may not recur. Their incidence may, moreover, be warded off successfully by adrenaline or ephedrine in appropriate dosage. Very frequently dropped beats should suggest the possibility of the onset of complete block with a liability to Adams-Stokes attack.

SUMMARY

To sum up then, the prognosis in heart-block depends on its cause and the degree to which the

associated lesions produced by this cause affect the efficiency of the heart. The liability to ventricular standstill carries a very grave prognosis of its own. Such a sign as heart-block affords too narrow a basis when taken by itself upon which to give a prognosis. But it may provide valuable evidence of the presence of myocardial disease which might otherwise be overlooked, and its presence adds an unfavourable point to the outlook in any case where it is found.

TERENCE EAST, M.D., F.R.C.P.,
Physician, King's College Hospital and Woolwich Memorial Hospital.

SPECIAL ARTICLES

BRITISH MEDICAL ASSOCIATION
PROCEEDINGS OF THE REPRESENTATIVE BODY

THE Representative Body met in London on July 19th, 20th, 22nd, and 23rd under the presidency of Mr. H. S. SOUTTAR.

Sir JAMES BARRETT (Melbourne) was elected president for 1935–6, in consequence of the death of Sir Richard Stawell, and Sir Farquhar Buzzard to the same office for 1936–7. Prof. T. G. Moorhead, Dr. R. Langdon-Down, Dr. R. H. Fetherston, and Dr. W. N. Robertson were elected vice-presidents. Sir Farquhar Buzzard, who was received with loud applause, acknowledged the honour and welcomed the Association to Oxford next year. Sir J. H. MacFarland and Sir Edward Mitchell were elected Honorary Members in commemoration of the first meeting in Australia.

Subscriptions from Retired Members

The hon. treasurer presented a satisfactory balance sheet, which called forth no criticism, but under this heading Dr. B. H. PAIN (Tunbridge Wells) likened the Association to a leaky watering can from which old members trickled out as fast as new ones came in; thus the can remained half full. His remedy was to reduce the subscription for those retired from practice, and he supported his motion by adducing replies to a questionnaire sent to non-members in Kent. The old men of the profession, he said, could give much to, and gain much from, the Association. A long series of speakers concurred, but Dr. A. BEAUCHAMP said that a questionnaire in Birmingham had shown only 10 per cent. of non-members to be aged. The hon. treasurer's statement that Kent's "sob-stuff was not real" evoked protest, but he declared that the Association lost only seventy members a year from retirements and nearly all those who retired in any part of the country apparently went to live in Kent. Dr. MURRAY (Banff) retorted that he did not come from the Garden of England and yet found the same problem, and he supported the motion. "Once a member aye a member" should, he thought, be the Association's motto. The difficulty, said the Chairman of Council, was to decide when a doctor retired, but Dr. Pain saw no such difficulty, and added, amidst applause, that in any case the Council had been elected to overcome difficulties. The Tunbridge Wells motion asking the Council to consider charging retired members less than the present two guineas was then passed by a very large majority.

"The British Medical Journal"

Dr. R. G. GORDON presented the report of the journal committee over which he presides. Improvements in the *Journal* were of the greatest importance to the whole Association, and might have an influence on membership. Most important was the attraction of the young man into the profession. He should be given a journal which he could not afford not to take, a journal considering general attractiveness of make-up and lay-out as well as other matters. The committee had tried during the year to improve appearance by bolder headings, more cross-headings, and better grouping. Many other changes were in contemplation. Next year a revolutionary programme might be presented.

Torquay, by the mouth of Dr. ERNEST WARD, asked the Council to consider the advisability of devoting part of the *Journal* to matters of interest to junior and senior students. Some of the prize essays might be published, and more reference given to student affairs, such as athletic prowess and history-making.

Dr. GORDON said the *Journal* was primarily for practitioners. More matter was available than could be published, and the *Journal* was hardly the proper vehicle for athletic reports and student activities. (Hear, hear.) The motion was rejected.

Dr. HELEN LUKIS (Kingston-on-Thames) proposed:

"That the items advertised in the *British Medical Journal* under Houses, Consulting Rooms, &c., should be confined to consulting rooms in bona fide consulting areas: houses sold in connection with an existing practice, nursing homes, residential chambers and general advertisements of house agents: and that advertisements of single houses should not be accepted unless coming under one of these categories."

She said that the motion was the result of grievances by six separate doctors, and related the incidents. She asked who would lose if the resolution were passed, and suggested that the medical man with inadequate capital and the patients in newly-built areas would not be among the losers. Squatters who built up a practice for sale were far too shrewd. Those who came to stay made careful inquiries before settling. Those who came and starved came as the result of answering such advertisements. The *Journal* ought not to lead people up the garden path like that. The loss of revenue to the *Journal* would be very small. The *Journal* was not published for the benefit of advertisers.

Dr. N. E. WATERFIELD (Kingston) supported. He had seen an advertisement of a house in his own small village, which was already well staffed by doctors, who would have had a grievance if someone had been attracted there.

Dr. E. H. NASH (Hounslow) said the matter needed consideration. Some areas were increasing at the rate of 10,000 a year; an advertisement offering a house in such a district did not hurt practitioners already there. It was not dignified to try to keep out all newcomers. Some kind of warning notice might meet the case.

Dr. GORDON expressed sympathy with the motion but agreed on the need for caution. Advertisements were not passed without a good deal of consideration wherever time allowed. He asked Kingston to refer the matter to Council. As it stood, the motion might preclude the advertisement of a death vacancy. Kingston accepted this modification and the meeting agreed.

"Secret Remedies"

Sir EWEN MACLEAN, chairman of the science committee, moved the adoption of its report. The sum of £1000 was, he said, distributed annually in the encouragement of research, and he hoped the sum would be increased. The tendency had been to shift the value from grants to scholarships, and this had been justified by the quality of the applications received. The Association was very fortunate in its Library and the chairman of the Library Committee (Dr. C. O. Hawthorne). Its arrangement with the National Central Library bestowed very wide possibilities on borrowers. The Sir Charles Hastings and Stewart prizes had been awarded this year to Australasian members.

Newcastle and West Dorset both applied for a new edition of "Secret Remedies." Dr. A. HEDLEY WHYTE (Newcastle) pointed out that the latest edition was dated 1912 and yet was still of use. There was an ever-increasing number of proprietary remedies about which patients frequently asked. Dr. J. A. PRIDHAM (West Dorset) admitted the difficulties of keeping the book up to date and suggested an annual supplement. Dr. E. N. NASH spoke strongly of the ramp of the patent medicine service in this country and of the value of "Secret Remedies" to the practitioner. But Sir EWAN MACLEAN said the book had not served the purpose for which it was issued and he thought its re-issue would be very inadvisable at the moment. The CHAIRMAN OF COUNCIL emphasised the difficulties of a new issue. He thought some system of differentiation between valuable and worthless secret remedies was very desirable, and said that this possibility was already being explored by a joint committee of the Association and the Pharmaceutical Society. He persuaded the meeting to reject the motions of Newcastle and West Dorset by a small majority.

The British Medical Bureau

Several divisions had on the paper motions disapproving of the relation of the Association with the British Medical Bureau and regretting that body's custom of advertising in the lay press and of allowing commissions. After prolonged discussion in private these motions were lost and the Representative Body recorded its confidence in the directors of the Bureau and its approval of their conduct of the business.

Nutrition—Alcohol—Fractures

The CHAIRMAN OF COUNCIL said that the nutrition committee, over which he presided, had prepared a practical application of the Diet 16 recommended in the Nutrition Report. This publication taught the housewife how to buy, cook and serve the diet advised, and would have wide social consequences. Dr. H. H. MACWILLIAM (Liverpool) asked if practitioners in distressed areas would be justified in certifying the need for additional nourishment for any person unable to afford this diet. Dr. NASH and Dr. A. K. GIBSON (Kensington) thought mismanagement was more important than poverty and laid stress on the amazing amount of waste.

Dr. W. G. WILLOUGHBY (Eastbourne) told the Representative Body that a report had been drawn up on the relation of alcohol to road accidents, and would shortly be printed in the journal.

Dr. H. G. DAIN took the chair while Mr. H. S. SOUTTAR submitted the report of the fractures committee [1] and emphasised again the fell consequences of discontinuity of medical responsibility.

Mr. MCADAM ECCLES emphasised the waste of human value and money caused by inadequate treatment of fractures. Dr. R. M. PICKEN was with him in hoping that the recommendations would be put into force, and mentioned the service the divisions might give in this connexion by bringing pressure to bear on local authorities and voluntary hospitals.

Mr. SOUTTAR having returned to the chair, the CHAIRMAN OF COUNCIL referred to the committee appointed to deal with the physical education of the civilian population and the half-dozen sub-committees dealing with special aspects of this problem. He anticipated that the report would appear early next year and would be of the greatest public value.

Dr. R. G. GORDON countered a complaint by Dr. J. S. MANSON (Warrington) that no further account had been given of the activities of the committee on the Medical Aspects of Abortion. Much information had, he said, been collected but a report of adequate measure required more time and more data.

The Report of Council on all these matters was approved.

Mr. H. S. SOUTTAR and Dr. H. G. DAIN were elected unopposed as chairman and deputy-chairman respectively of the Representative Body.

Medico-political

A long discussion, which was held in private, took place on the dispute at Llanelly. In the result, a motion was passed expressing confidence in the Council but asking it to continue to strive for a satisfactory solution of the difficulty.

A long discussion took place on the medical services in Llanelly and district, and eventually the following resolution was unanimously approved by the meeting:—

That the Annual Representative Meeting expresses confidence in the Council, and instructs it to continue to use every endeavour to secure a satisfactory settlement of the dispute at Llanelly.

South-West Wales asked the meeting to deprecate the practice of insurance companies in demanding complicated medical reports in sickness and accident claims with a view to using information so obtained as grounds for refusing renewal of insurance when the time came. Moreover, the patient had to pay. Dr. BONE, chairman of the committee, said the problem was an old and familiar one, and asked what steps could be taken, except by propaganda. The motion was lost. The Isle of Wight also had complaints about insurance. Dr. H. S. HOWIE WOOD contended that a simplified form of report and examination should be instituted for cases where only half a guinea was payable. Dr. BONE accepted this resolution, but could not do the same for the second proposal: that certificates on patients not previously examined should carry a minimum fee of half a guinea—a sum which Dr. C. E. S. FLEMMING (Council) wished to raise to a guinea. Dr. HOWIE WOOD obtained permission to refer the matter to Council for consideration.

Dr. A. T. Jones (N. Glamorgan and Brecknock) felt that the Council had standardised a flat rate of a guinea for examination and report on workmen's compensation and accident cases, by its opinion that "the usual fee of £1 1s. for this class of work is equitable," and moved that a guinea should be the minimum fee. The motion was passed.

The vexed problem of the encroachment of whole-time medical officers on private practice was raised by Brighton. Dr. T. P. MULCAHY moved that:—

"Whether or not whole-time salaried medical officers appointed to mental hospitals by a local authority should

[1] See THE LANCET, 1935, i., 383 and 393.

be permitted to engage in private consultant practice should depend, not on the local authority having adopted the scheme on staffing of their mental hospitals outlined in the Memorandum on Treatment of Mental Disability (1932), but on whether or not there is available in the area of that authority one or more private medical practitioners who fulfil one or more of the three criteria adopted by the Association as determining the status of a consultant in psychiatry. When there is such a private practitioner or practitioners available, then whole-time salaried medical officers should not engage in private practice."

Dr. L. A. PARRY explained that what Brighton wanted was to ensure that if a private psychiatrist was available in an area he should not come into conflict with a whole-time officer. Dr. GORDON expressed sympathy with the motion but pointed out the number of areas where no private expert in mental disease was available. The amendments proposed in the Council's report were the result of discussion with the Medico-Psychological Association. He was reluctant to upset this arrangement, but agreed with the principle. He suggested that a later motion on the agenda would establish the principle without necessitating further discussion with the Royal Medico-Psychological Association. Brighton, touched by his assurances and appeal, withdrew its motion.

Dr. R. EAGER, for Exeter, also wished to modify the Council's report on this matter by adding to it :—

"In considering the eligibility of a practitioner for one of these appointments, the criteria to which due regard should be given are: (1) Special academic or post-graduate study combined with some actual practice of the specialty; (2) Tenure of hospital appointments affording special opportunities for acquiring experience; (3) Local professional recognition of competence in a consulting and expert capacity; and that para. 52 be amended by the deletion of the words 'are adequately qualified to staff such clinics' and the substitution therefor of the words 'satisfy the criteria set forth in para. 48 V.'"

The report, thought Dr. Eager, gave an impression that six months' instruction was sufficient to qualify a man to treat mental disorder; when he had joined a mental hospital staff he had been told that five years' experience was essential. Dr. GORDON felt that all this was covered by the original words "adequately qualified," but was willing to make the matter explicit if desired. Coöperation was the great essential until such time as it was no longer necessary to use whole-time salaried officers in psychiatric clinics at all. He accepted the motion.

The New Contract Practice

Dr. KEITH GIBSON (Kensington) said that those who were working the public medical services wanted facilities for meeting and discussion, and proposed a motion asking the B.M.A. to provide such facilities. Medical men should be in a position to put things right before a Government department took over any service and not several months later. He received strong support from Dr. S. WAND (Birmingham), who stressed the great expansion of public medical services, and from Dr. HELEN LUKIS (Kingston) who described these services as one of the youngest babies of the B.M.A., cherished by the younger members of the profession who urgently needed advice and help. Dr. BONE doubted if this were a good method of attaining the end desired. The central office had very complete information on the matter, available to any member; existing services were very willing to give help and information; and this proposal was cumbrous and costly. How many of the 51 existing services would send delegates to a conference? He asked for reference to Council if the meeting, nevertheless, wished a conference called. Dr. A. MCCARTHY (Birmingham) denied that the central office had full information; all it had was a record of the mistakes made by individual officers in isolated districts. Dr. HOWARD STRATFORD (Kensington) and Dr. A. GRAY (Wandsworth) thought that now was the time before more mistakes were made, and that a conference would be of great value. Dr. A. BEAUCHAMP (Birmingham) declared that the management of a young child could not wait the twelve months involved by reference to Council. Dr. PETER MACDONALD challenged Dr. Bone's statement that a conference would cost the Association anything. Dr. NASH declared that the policy advocated by Dr. Bone was that which had made a mess of the National Health Insurance Acts. "Damn the expense," he said, "if we want the job done." If public discussion was of no value, what was the representative meeting there for? Dr. C. H. PANTING recalled the early mistakes of the Essex public medical service and the similar mistakes being made by new bodies. Essex had helped 31 out of the 51 existing services. The motion was carried by a very large majority.

Wandsworth, South-west Essex, and Willesden all wanted to ensure that contract practice for persons with incomes over £250 should be a matter of local option. The Council, said Dr. F. GRAY, was still bound by a 15-year-old motion prohibiting contract service on this income level. Contract practice for these people had been approved at Bournemouth for every kind of service except that of the general practitioner. Another medical body proposed to extend the National Health Insurance scheme to the whole population; the B.M.A. had at present no alternative scheme to offer.

Dr. C. H. PANTING strongly supported the S.W. Essex motion, saying that contract practice was not a bad thing in itself if properly run. The borderland people needed some service to fit their needs. Dr. C. F. T. SCOTT, speaking for Willesden, said that his area had already drafted a scheme, as the need was so manifest. The need was further emphasised by Dr. KEITH GIBSON, but Sir HENRY BRACKENBURY urged that the exact wording be left for very deliberate consideration by the Council. Dr. HOWARD STRATFORD, gallantly fighting in the last ditch, declared that there would be no private practice left if this motion were passed, and that the absolute necessity for it had not yet arisen. He found an ally in Dr. A. B. MURRAY (Banff), who was anxious that the terms should be national and not determined by the local profession. Banff believed that the private practitioner was the backbone of the nation, and was opposed to all contract practice. Nobody there would get a living if this motion were passed. He made an impassioned appeal to representatives not to let down those who strove to uphold the standards of practice, and not to become mere parts of the machine. "Show that you can think for yourselves," he concluded amidst applause, "and take the consequences." Dr. C. S. POOLER (Chesterfield) gave the same advice but urged the meeting to think not in terms of Banff but of the whole country. The resolution binding the Council was dated not 1920 but 1913. Contract practice was not good for patient or doctor, but in the last ten or fifteen years most doctors had been obliged to treat persons over the £250 limit on a contract basis.

Dr. E. R. WALKER (Aberdeen) agreed that this was the beginning of the end but did not regret it. The laity regarded ill-health as a misfortune, and it

seemed only logical that they should insure against this as against every other misfortune. He believed that they would never get a real preventive medicine practised until they had a contract system. He was supported by Dr. N. E. WATERFIELD (Kingston) and Dr. KEITH GIBSON, but Dr. C. J. PALMER (Nottingham) and Dr. A. C. CARTER (Bournemouth) thought the motion a regressive one.

Dr. S. A. FORBES (Croydon) described the motion as allowing the Council to do in the future what it had done when it thought right in the past. Dr. NASH deprecated an attempt to pelt the incoming tide with pebbles of public opinion and preferred to dig channels for the water. Local option, he thought, would be a very dangerous thing, risking a whitling away piecemeal of the Association's strength. Dr. HOWIE WOOD (Isle of Wight) maintained that general practice was what general practitioners made it. Those who opposed this scheme were forgetting that the Association considered the welfare of the public as well as that of the doctors. Conditions varied so tremendously that a flat rate was impossible. Dr. J. C. ARTHUR, of Gateshead, said that in his district people with £250–£500 a year were comfortably off and had something put by; they had no desire for a further extension of contract practice; 60 per cent. of them ran cars.

Sir HENRY BRACKENBURY strove to clear up misapprehensions. Local option was not to be unlimited; the proposal was that the doctors of an area might apply to the Council to vary the rate of contribution. The usual conditions would apply in all general circumstances, and the matter concerned only voluntary contract schemes.

Finally the motion was carried by 108 votes to 37 (Dr. A. B. Murray demanding a count), in the form as proposed by Sir HENRY BRACKENBURY and accepted by Wandsworth, Essex, and Willesden:—

"That this Meeting instructs the Council to amend Minute 109 of the Annual Representative Meeting, 1920, so as to permit the Council to sanction a higher income limit, should the local profession desire it."

Dr. BONE proposed, and carried without difficulty, a proposal to amend the means whereby B.M.A. candidates for election to the General Medical Council are selected. The chief point about the new scheme, he said, was that in future it would be quite clear to everybody that the candidates were Association candidates.

The meeting then carried without discussion another motion by Dr. BONE, recommending the Council, pending the 1936 meeting, to treat as rescinded, two statements of Association policy on coroners' inquests: that the office of the coroner should be made administrative; and that the coroner should in all cases view the body. He said that the Council was preparing a statement of evidence to be given before the Departmental Committee on Coroners' Law.

Medical Ethics

Dr. C. O. HAWTHORNE, chairman of the central ethical committee, in moving the adoption of the committee's report, remarked that local authorities sometimes inserted in the lay press advertisements of appointments with conditions which disqualified them from admission to the *Journal*. In such cases the committee was now empowered to insert an appropriate notice in any paper which had printed an advertisement of a vacancy included in the *Journal's* "Important Notices." He also said that difficulty had been experienced by spa practitioners consulted by patients from a distance, since they could not consult with the local medical adviser and were therefore forbidden, on a strict interpretation of the Ethical Rules of Consultation, to treat the patients. To meet this position the Council had ruled that when a patient came to reside for a time at a spa, he should be considered to have left the care of his usual practitioner and the spa practitioner should be free to treat him—so long as the patient continued to reside at the spa.

Opticians

Mr. N. BISHOP HARMAN, chairman of the ophthalmic committee, said in presenting its report that the increase in patients seen by the National Ophthalmic Treatment Board had only been 17 per cent. during 1934, but 27 per cent. in the first six months of the present year. Most of this increase had been among patients who came on their own and not from societies, showing that the committee's propaganda had been effective. Thirty-five per cent. of 10,000 patients had had something wrong other than refraction—a strong contrast with the corresponding figure of only 3 per cent. among those seen by opticians. A fresh set of 10,000 figures gave practically identical information, although it came from very scattered sources. They afforded statistical proof of several authoritative opinions that opticians failed to recognise ocular disease. He appealed eloquently to the profession to send their patients to properly qualified ophthalmologists. Some hospitals, he said, were entering into agreements with prescribing opticians, and it was imperative that this movement should be stopped. He deplored the complication of the current certificate of blindness.

Torquay, through Dr. E. WARD, put forward a resolution urging the Council:—

"(1) To approach the Minister of Health by deputation or otherwise and to reaffirm the policy of the Association in this matter pointing out the danger to the eye-sight of patients who are sent to opticians without previous certification or examination, and to urge him to adopt measures which will safeguard the public against such risks.

(2) To notify all contributory schemes, approved societies and such other bodies as make provision for sight-testing by opticians, offering them guidance as to the dangers of such treatment without medical training.

(3) To advise strongly all hospitals lending their names to contributory schemes, which provide such optical benefit, to sever their connexion with such schemes.

(4) To circularise the medical profession of the steps taken above."

Dr. C. M. STEVENSON (Cambridge), however, said that the Council had already been doing these things for some time. It was largely dependent on local secretaries for the success of its efforts. Mr. Bishop Harman confirmed that the Council had "kept all these things from its youth up," and suggested a general motion of commendation, which the representative from Torquay adopted and which was agreed.

Dr. F. C. GITTINGS (Portsmouth) proposed a meeting of ophthalmic medical practitioners to discuss the difficulties of the Association's benefit schemes. Mr. BISHOP HARMAN pointed out that a previous meeting of London ophthalmologists had not been a happy one, that a national meeting would be too large to hold in the great hall of the Association's building, and that the Ophthalmic Committee gave adequate territorial representation. The motion was rejected. He adopted an amendment by Sheffield that the fee for certifying blind patients should be not less than three guineas for a session of two hours.

Osteopaths

Dr. J. W. BONE presented for approval the report of the osteopathy committee, containing the evidence brought by the Association before the Select Committee of the House of Lords. He paid a special tribute to the very careful and exhaustive way in which material had been prepared by Dr. Charles Hill and the staff. The Association had organised and systematised the whole opposition to the Bill. The House of Lords had adopted unprecedented procedure in submitting a private Member's Bill to a select committee with leave for counsel to appear; heavy costs had thereby been involved. Dr. Bone read extracts from the Report of the Select Committee just issued (see p. 213), which appeared to give great satisfaction.

Mr. W. MCADAM ECCLES thought the Association might congratulate all concerned in this matter on being prompt and thorough and on doing a piece of work which would create history and do good to the rank and file of the profession. Good had been done also to the osteopaths themselves. Those who had a vocation for osteopathy would realise now that the best path for them was medical qualification and registration. The CHAIRMAN OF COUNCIL explained how the machinery of the Association worked in these matters. The general feelings of congratulation and gratitude were expressed in a formal vote of thanks, which was carried with loud acclamation.

Public Health

Prof. R. M. F. PICKEN, chairman of the public health committee, moved the adoption of his section of the Council's report and discussed the special report on immunisation.[2] He also moved the adoption of the Council's recommendation that the Ministry and local authorities be urged to establish adequate machinery for collecting and storing convalescent serum for use in prophylaxis against measles. Practitioners, he said, could not obtain the serum from official sources or manufacturers, chiefly because the number of convalescents was so small and no adequate arrangements existed for collection. He asked for the coöperation of those in charge of adult patients.

Dr. A. K. CHALMERS (Glasgow) accused the profession of playing a part in the failure of compulsory vaccination by giving way to the mother's plea for "ane mark and a wee ane." He thought the Association ought to play a part in educating the public. Dr. NASH desired to include "adult serum" in the recommendation. Parents, he said, often objected to the necessary quantities of blood being taken from their convalescent children, but he had obtained adult serum in adequate quantity and quality from Rover scouts. Dr. PICKEN, however, demurred on scientific grounds, as the action of convalescent serum was well known, and special machinery would be necessary to collect adult serum.

Dr. D'EWART (Manchester) doubted gravely whether convalescent serum either was to be obtained in great cities or was as valuable in treatment as adult serum. Adult serum was easily obtainable in Manchester.

Dr. CHALMERS moved a motion welcoming the report and asking that it be forwarded to each division. He said his object was to get divisions to combine and work on a uniform plan. The population would only submit willingly to vaccination in the presence of an epidemic, and better results would be obtained without compulsion.

Dr. PICKEN, moving the remainder of the report, thanked *The Lancet* and the *Journal* of the Society of Medical Officers of Health for coöperating with the *British Medical Journal* in the selection of advertisements of vacancies for publication. Much work was involved in seeing that these advertisements conformed to the requirements of the Association.

[2] THE LANCET, 1935, i., 1507.

Midwifery in General Practice

Dr. A. KEITH GIBSON (Kensington), proposing that the Council should investigate the serious diminution of opportunities for midwifery in general practice, pointed out that the practitioner wished to do the work and found the chances very small, because large numbers of patients were absorbed by hospitals, not for the ordinary good reasons but because it cost them less. The problem was analogous with that of out-patients. In Kensington, patients were being referred through the M.O.H. back to the private practitioners, but a process of "Dutch auction"—general reduction of rates—was widespread.

Dr. PICKEN accepted the motion for the Council, and it was agreed. In moving the remainder of his report, however, he raised the subject at length in speaking of maternal mortality. The Association had, he said, recently carried out an investigation through private practitioners into the causes of maternal mortality, the only group of diseases against which a national public health campaign had proved unsuccessful. The Joint Midwifery Council had reported very rapidly, but had been able to use the results of much previous research. The Public Health Committee, in considering the report, had found itself in a difficulty. The Association's scheme was founded on continuity of treatment by the private practitioner, whereas the Joint Council had rather concentrated on the position of the midwife, the hub of its réport being the need for a municipal midwifery service. The Association's Council had therefore appointed a special sub-committee to consider afresh the national maternity scheme of the Association with special reference to the Joint Council's report. He invited discussion by the meeting, so that if the Council of the Association had to take action before the next A.R.M. it might have some knowledge of what general practitioners felt.

Dr. A. BALDIE (Kensington) claimed that Kensington was peculiarly entitled to an opinion, because its practitioners were surrounded by legitimately competing institutions. Over the whole country, however, the process went on of training doctors on the material they ought to be treating after they qualified—the profession manufactured and swallowed its own tail. Some arrangement should be made for institutions to charge a fee to women who could afford it. Efforts should be made to combat propaganda based on the alleged incompetence of general practitioners. The doctor was competent, though he might be out of practice through the incompetence of the community to provide him with opportunity. Midwifery should not be regarded as a specialty; childbirth was a physiological process and not a disease. Specialists should link up with general practitioners to formulate a scheme whereby the profession would not be faced with the fait accompli of a midwifery service run by laymen. No lay interference, political or otherwise, should be tolerated.

Dr. H. GUY DAIN (chairman, Insurance Acts Committee) drew attention to the new prevalence of obstetric shock, and moved:—

"That the B.M.A. regrets that the question of maternal mortality has become the subject of widespread political

discussion, receiving great publicity in the lay press. Maternal mortality is a scientific and administrative problem which deserves careful and scientific study, but in the experience of practising doctors, the publicity which it is receiving to-day is tending to terrify child-bearing women and is, in itself, a cause of increased mortality."

This motion, seconded by Dr. A. BEAUCHAMP (Birmingham), was carried amid cheers.

Dr. A. B. MURRAY (Banff) claimed a mortality-rate in his district of one per thousand, and ascribed its lowness to a good general practitioner service. He feared that a service of whole-time midwives would lead to a service of whole-time doctors. A municipal service in his area would be prohibitively expensive.—Dr. KILLICK MILLARD (Leicester) declared that before the profession accepted the Joint Council's proposal, it should be satisfied that it represented the best solution.

Dr. H. H. MACWILLIAM (Liverpool) strongly supported the proposal for a salaried midwifery service. Liverpool midwives could not make an adequate income in private practice. He hoped they would be sent into suitable hospitals to enlarge their education, and to learn that "obstetric shock" was a refuge of the destitute and that such deaths were due to some other cause than fright induced by political propaganda.—Dr. C. F. SCOTT (Willesden) complained that Willesden borough council had built a maternity hospital five miles away, into which no doctor could follow his patient. Harrow, on the other hand, had opened a home into which general practitioners were invited, and paid them—instead of whole-time officers—if the patients could not. The patients much preferred being attended by their own doctors.—Dr. J. LIVINGSTONE (Barrow-in-Furness) deplored the practice of midwives in some areas of sending for certain doctors and not the patient's own attendant. This abuse should be brought to the attention of the Central Midwives Board, as relatives would not coöperate in local action.

Dr. J. MIDDLETON MARTIN (Gloucestershire) was astonished that the Joint Council should prefer a municipal service of midwives in view of the splendid clinical record of such bodies as the Queen Victoria's Jubilee Institute of Nurses. The best constructive suggestion so far was the scheme for antenatal examination by the practitioner who, at the request of the midwife, would attend the confinement. The more a midwife was encouraged to think of herself, the greater the likelihood of her interfering in a situation which needed the doctor.

Dr. D. O. TWINING (Plymouth) urged the claims of the rural district to a whole-time midwife. He did not like the district nurse to double the part, thinking that she would be a better nurse if she did not do midwifery and a safer midwife if she did not come to a confinement from other patients.—Dr. BEAUCHAMP suggested that midwives were often afraid to notify a temperature, but that a woman was as safe in her own home, attended by her own doctor, as anywhere.—SIR EWEN MACLEAN (Council) pointed out that of the women confined in England and Wales, about 65 per cent. were attended throughout by midwives and 10 per cent. went to hospital; this left a quarter—about 172,500—for the general practitioner. The standard of midwifery in the country must be set by the general practitioner. No scheme was possible which contemplated dividing the doctors of the country into those who might take part and those who might not. The base of an efficient system was a competent midwife. In many areas, a whole-time salaried service would be entirely inadvisable; in some nothing else would answer the purpose. The new sub-committee, the Council, and, next year, the Representative Body would have most carefully to consider the whole position.

Dr. W. PATERSON asked what the general practitioner thought of having large numbers of midwives as municipal officials. In answer to his invitation Dr. WATERFIELD championed the district nurse, whose knowledge of the people and hold on their confidence, were a great asset. The risk of infecting mothers from other sources was, he thought, very small. The patient should have some choice of midwife. As a practitioner, he preferred to be able to get his midwife assistant changed if necessary, and a local authority was much less approachable than a district nursing association.—Dr. W. G. THWAITES (Brighton) said that the usual patient who went wrong was a young married woman, who was physically unfit through tinned food, hard work, and indiscreet recreation. The Council should use these facts in combating political accusations of inefficiency.

Dr. W. G. WILLOUGHBY (Eastbourne) stated that the municipal home of which he had charge confined 35 per cent. of the mothers of the area, and the general practitioners often insisted on their patients going into it. Divisions should discuss this problem with their medical officers of health.—Dr. C. E. S. FLEMMING (Trowbridge) thought it did not matter whether the midwife was appointed by a municipality or a district committee, so long as she was competent. If the medical advisory committee was good, there should be no difficulty about approaching the local authority, who were often better able to choose a good nurse. The Queen's Nurses in Victoria, Australia, who handled cases of all kinds, showed a mortality-rate under 1 per 1000.—Dr. A. LYNDON (Guildford) supported the plea for a part-time midwife under an association. In his area the association sent its candidates to a small hospital for two years' training, and to a recognised school for their C.M.B. In his village there was a nurses' cottage with a good two-bed maternity ward. The nurses knew the whole circumstances of the patient, and the patient could select the nurse.

The motion to adopt the rest of the report was carried.

National Health Insurance

Dr. DAIN (chairman of the Insurance Acts Committee) moved his committee's report.

Dr. BALDIE (Kensington) moved that any scheme for supplementing general practitioner's service for insured persons by expert treatment and laboratory service should be initiated and administered in collaboration with the representatives of insurance practitioners. He stressed the need for auxiliary services such as radiological and pathological examination. He prophesied the necessity for modifying the dual control over insurance practice, and urged panel practitioners to put forward their own scheme in good time, to anticipate control by laymen and medical experts. Panel representatives would assert the principle of medical control of all services, administrative and clinical.—Dr. DAIN warmly approved the principle of the motion, and it was carried unanimously.

Dr. J. C. ARTHUR (Gateshead) opposed the Council's suggestion, at a time marked by encroachment of all kinds, to set up a clinic to diagnose and treat anæmia. A general practitioner could estimate hæmoglobin in a few minutes and test whole blood in a quarter of an hour. He deprecated what he called a declaration of the general practitioner's incompetence. Never-

theless, the meeting accepted the committee's report without dissent.

Tunbridge Wells, through Dr. B. H. PAIN, moved a motion desiring the abolition of the compulsory statistical compilation of national health insurance cards, and asking that such cards be used primarily for clinical notes. He asked for voluntary record-keeping, more clinical and less statistical, and for requests for accurate records on some one disease, to be sent to the Medical Research Council. Panel doctors would then feel themselves fellow-workers with the greatest research students. The Ministry must now possess all the statistics they needed.—Dr. HOWIE WOOD (Isle of Wight), in support, compared the relationship between the panel doctor and the regional medical officer with that of a stern schoolmaster and a recalcitrant pupil. In his area the practitioners prided themselves on putting down all possible clinical data, but did not meticulously note every attendance. They, however, had a reasonable R.M.O.—Dr. FLEMMING said the real objection to recording the number of attendances was that the Ministry regarded these figures as a measure of the value of the practitioner's work.

Dr. A. B. MURRAY boasted that this reform had been accomplished in Scotland five years before. The Scottish Board of Health had replaced the records by a return of patients needing admission to hospital, and then by clinical returns—e.g., on early signs of cardiac and valvular disease. It was hoped that a more elastic scheme would be provided, allowing the doctor to record matters which chiefly interested him. His scientific work was more valuable than the collection of statistics.

Dr. DAIN replied that panel doctors already kept clinical records, the quality of which was improving. The Ministry were agreeing to lay less stress on the statistical side. He did not find the marking of the cards any burden, as some colleagues seemed to find it. Those who kept these records well were more likely to keep good clinical ones than those who resented doing so. He hoped that the Representative Body would not express an opinion on a business matter concerning only panel practitioners and the Ministry.

Sir HENRY BRACKENBURY, while expressing himself as in favour of the motion, agreed that the matter should be left to the Panel Conference. His opinion that a divergence of opinion between the two conferences would be a lamentable thing was shared by a large majority, and the meeting forthwith passed to the next business.

Consultants and Specialists

Prof. A. H. BURGESS (chairman of the Consultants' and Specialists' Group Committee for England and Wales), moving a recommendation that domiciliary attendance by a consultant should, when possible, be provided by a consultant in private practice, explained that a certain county council had advertised for whole-time salaried staff for their hospital, on condition that successful candidates must act as consultants to general medical practitioners outside if called on, the fee to go to the council. This council proposed to make the services of its obstetric consultants available to some of its local authorities for maternity and child welfare work. The recommendation would not affect consultations on notifiable diseases. The Council of the B.M.A. would, if the meeting accepted the resolution, request divisions and branches to enact ethical rules in the same sense. This was carried unanimously by vote, and became the policy of the Association.

Prof. BURGESS, proposing the adoption of the remainder of this report, said that his Committee were in favour of the principle of extending National Health Insurance under suitable conditions. He also proposed :—

"That it is in the general interest of the public and of medicine that consultant members of staffs of council hospitals should, as a rule, be part-time and not whole-time officers."

He pointed out that the part-time officer had the stimulus of consultation with the general practitioner, and sometimes of association with students ; he was also available for the public and allowed greater freedom of choice of doctor and absence of red tape.

Dr. H. ROBINSON (Kensington) moved to refer this back to Council, on the ground that it was based on conditions obsolete since 1929, and supported his contention with many instances. The policy of the Association, he said, must not only be in the public interests, but must also appear to be so ; he feared that the proposed resolution would arouse the opposition of the public and of the L.C.C. He received the support of Dr. E. W. G. MASTERMAN (Council), who regarded the motion as very dangerous. He was most anxious that municipal hospital officers in charge of severe cases and instructing students—as they now did in many hospitals—should be specially qualified for their work. The resolution might block this desirable procedure. The authority of Sir HENRY BRACKENBURY, however, was thrown into the scale on behalf of the motion which, he admitted frankly, was a general rule with very many exceptions. London was unique, and its Council was tackling its vast job extraordinarily well ; nevertheless it should not govern the rule for the whole country. The rules had been formulated in 1930, because of the 1929 Act, and did not antedate it as Dr. Robinson had suggested. If a large number of counties appointed whole-time consultants with liberty to act as private consultants throughout the area, private consultant practice would not be worth having in the future. One large county had already adopted that method, and if the Association could, it had to stop it at the beginning.

The CHAIRMAN OF COUNCIL emphasised the warning against taking London as a standard, and assured the meeting that the matter had been debated again and again in Council, and reference back could lead to no different result.

Dr. M. W. RENTON (Dartford) pleaded for consideration of the part-time general practitioner, to whom far more scope should be given on the staffs of these hospitals. He argued that he was in order in mentioning general practitioners, because the interests of the consultants were identical with theirs and evoked applause by his commendation of their work on these hospitals. Consultants must not be cloistered, declared Mr. BISHOP HARMAN, returning to the point, and urged the meeting to reinforce the view that the best consultant was he who worked both in hospitals and in private. Dr. ROBINSON was not dismayed by the forces ranged against him, but failed to carry more than a few of the members with him.

WEST LONDON HOSPITAL.—Princess Arthur of Connaught visited this hospital on "pound day" to receive the gifts from visitors. Nearly a thousand school children were present to make their contributions. It is hoped before the end of the year to complete the new buildings, which will be known as the "Silver Jubilee extensions."

THE OSTEOPATHS BILL

REPORT FROM THE SELECT COMMITTEE

ON April 12th the sittings of the Select Committee of the House of Lords appointed to consider the Registration and Regulation of Osteopaths Bill were abruptly terminated, the supporters of the Bill having withdrawn their support, before all the witnesses against it had been heard. The Committee, which consisted of Lord Amulree (chairman), Lord Dawson of Penn, Lord Elibank, Lord Esher, Lord Carnock, Lord Marley, and Lord Redesdale, have now issued a unanimous report which is set out below.

1. The Committee have occupied twelve days in their inquiry, in the course of which they have examined twenty witnesses. Before the evidence of those opposing the Bill had been concluded the supporters of the Bill intimated that they did not desire to ask the Committee to recommend that it should be proceeded with.[1] The Committee, however, conceived it to be nevertheless their duty to report in detail to the House.

2. The principal object of the Bill was stated to be the protection of the public against the practice of osteopathy by incompetent or unqualified persons. Learned counsel, in opening the case for the Bill, put it to the Committee that it would be sufficient for him to establish (*a*) that osteopathy is extensively practised, and (*b*) that the public in large and increasing numbers are desirous of being treated by this method. On these hypotheses he asked the Committee to deduce that Parliament should authorise the establishment of a state register for osteopaths, with a prescribed qualifying education and standard of proficiency; in fact, to accept the Bill in principle.

3. In all comparable cases of vocations for which a statutory register has been authorised, three conditions have been fulfilled, viz.:—

(i) The sphere or territory within which the vocation operates has been clearly defined.

(ii) The vocation has already long been in general use.

(iii) There has been already in existence a well-established and efficient system of voluntary examination and registration.

The establishment of a state register moreover not merely protects the public from the unqualified practitioner, but gives the guarantee of Parliament that persons of the class proposed to be registered are within their own sphere worthy, and the only persons worthy, of the public confidence. Instances (besides the medical register) are the registers of dentists, pharmacists, midwives and veterinary surgeons. The province of each can be clearly defined, the practice of each is universal, and each was in a state of efficient voluntary organisation at the time when the statutory register was established.

4. In the case of the osteopathic calling none of these conditions can be said to be fulfilled, for the following reasons:—

(i) No definition of osteopathy was included in the Bill as introduced, and although one was subsequently proposed for inclusion in the Bill, and others suggested, none emerged which satisfactorily differentiated the osteopathic sphere of activity.

(ii) The practice of osteopathy, though widespread in the United States of America and Canada, is carried on in the United Kingdom by not more than two to three thousand practitioners, of whom only about 170 can claim to be "qualified." It is practically unknown on the continent of Europe.

(iii) The only existing establishment in this country for the education and examination of osteopaths was exposed, in the course of evidence before us, as being of negligible importance, inefficient for its purpose, and above all in thoroughly dishonest hands. Pending the setting up of any adequate machinery in this country, therefore, the only training ground for the qualified osteopath would be North America, and it was pointed out by the representative of the Ministry of Health that "it is alien to the general principles which have so far been followed in comparable legislation to recognise qualifications which are conferred by foreign educational institutions." Moreover the Committee had no evidence before them as to the standard of education of osteopaths in North America.

5. In view of the fact that the establishment of a statutory register would give something in the nature of a "hall-mark" to osteopathy, the Committee felt it their duty to inquire at some length into the nature and value of osteopathic treatment. It emerged clearly that osteopathy is not—as is popularly supposed—a craft or art limited to the treatment of maladies or defects of the bones, joints, muscles, ligaments, &c., by manipulation; in this sphere the Committee have no doubt that qualified osteopaths perform valuable services. They may even possibly be regarded as having at one time developed a technique in advance of medical science, which has been to some extent accepted by members of the medical profession who practise what is called "manipulative surgery". Osteopathy, however, claims to be a method of healing which is suitable for the treatment of *all diseases of any description*. "We claim," said Dr. Streeter in evidence, "we have a different school of healing, and we want provision made for it, and an orthodox curriculum. We want to develop along our own lines; we feel we are just as competent as any physician to act as a family physician and general practitioner."

6. As the law stands, anyone is entitled to practise the art of healing, but only registered medical practitioners are entitled to hold themselves out as duly qualified to treat all diseases. Were the present Bill to pass, registered osteopaths would be entitled to make a like claim. It is true that, on no logical principle, provisions were proposed for insertion in the Bill, excluding osteopaths from the right to perform "major surgery", to practise midwifery, to administer anæsthetics and to give certificates of the cause of death; but neither of the distinguished practising osteopaths, who gave evidence before us, would recede in any way from the full claim of osteopathy to treat all disease.

7. It is hardly necessary to point out the far-reaching nature of this claim, involving as it does the statutory recognition of two alternative, and to a great extent conflicting, theories of healing. Dr. Kelman Macdonald explained his views as to the scientific basis upon which the osteopathic theory reposes, and the Committee would wish to pay a tribute to the ability and sincerity of this witness; but Dr. Macdonald is actually a registered medical practitioner, and, whilst he clung to the formulæ on which osteopathy is based, it was clear that in actual practice he would not deny his patients, where

[1] The reasons given by the supporters of the Bill were as follows:—
(*a*) That they desired what they considered to be the scientific basis of osteopathy to be further explored.
(*b*) That they could not properly ask for a measure which required for its full operation the granting of powers to the British School of Osteopathy, the present constitution of which the principal supporters did not approve.

necessary, the benefit of appropriate medical or surgical treatment.[2]

8. The Committee accept the claim that cures are frequently effected by osteopathic methods. On the other hand there have been some failures. The same may be said of other methods of healing. The Committee have not been in any considerable degree influenced by evidence either of cures or of failures.

9. The Committee find on the evidence before them that the claim of the osteopaths to be able to treat all diseases as set out in the Bill has not been established, and that it would not be safe or proper for Parliament to recognise osteopathic practitioners as qualified, on a similar footing to that of registered medical practitioners, to diagnose and treat all human complaints.

10. Further, the Committee are of opinion that the question of establishing a register of qualified osteopaths by Act of Parliament should in any case be deferred until the sphere of osteopathy has been defined, and a system of education in the principles and practice of osteopathy has been developed in this country in one or more well equipped and properly conducted institutions.

11. A question was raised in the course of the hearing as to whether there should be what was described as a "scientific" inquiry into the merits of the principles and practice of osteopathy. The president of the General Medical Council said he had no objection to such an inquiry. The Ministry of Health considered that before any register was authorised by statute the theory and practice of osteopathy should be established by such an inquiry.

As already stated, the Committee have reached the conclusion that the claim of the osteopaths to be able to treat all diseases has not been established and they are satisfied that such conclusion is sound.

12. The Committee, in view of the considerations set out above, have ordered that the Bill be reported to the House without amendment, and recommend that it be not further proceeded with.

MEDICINE AND THE LAW

Damages for Slippery Floors

IN Weigall *v.* Westminster Hospital, Mr. Justice Horridge, last week, awarded the substantial sum of £2826 to a plaintiff who broke her thigh by slipping on a polished floor at the hospital's annexe at Hampstead. Mrs. Weigall, the plaintiff, was visiting her son who was a paying patient at the hospital. While inside the building she went to see the consulting surgeon. The floor of the room was covered with highly polished linoleum; near the fireplace was a mat which suddenly slipped when she put her foot upon it. She fell on her side and broke her left thigh; in consequence, her left leg is now an inch shorter than the right. It was negligent of the defendant hospital, she contended, to put a mat on a slippery floor without taking proper steps to ensure that it would be stable when trodden on. The defendants denied negligence and suggested that the fall was a mere accident caused by Mrs. Weigall losing her balance on suddenly turning round to speak to the surgeon. There was also apparently, at one stage of the case, an argument that there was not the same duty to the plaintiff if she went to see members of the staff in their rooms as when she merely went to see a patient. The judge found for the plaintiff all along the line. He accepted her account of the cause of the fall. He said there was an implied contract that she should be at liberty to visit her son, and also that she should be at liberty to consult the surgeon with regard to her son's condition. That was the normal course of events when she visited her son. She was present on the hospital's premises as an invitee. The judge cited and followed a decision of Lord Hailsham to the effect that, where persons are present by the invitation of the occupier, there is a duty upon the occupier to take reasonable care that the premises are safe. In Mrs. Weigall's case the court was satisfied that there had not been reasonable care. The defendants could not say they were unaware that the floor was highly polished; indeed the secretary of the hospital had said that it was kept polished for antiseptic purposes. If mats were placed on such a floor, there was a duty to take some precautions to prevent them slipping. The defendants ought to have known that the mat might slip, and the plaintiff was not to know that no precautions had been taken to prevent it slipping. Mrs. Weigall had not been guilty of any contributory negligence; it was not for her to take care to see that the defendants had secured the mat before she put her foot on it.

The slippery mat on the highly polished floor at the hospital—which his Lordship found to be an "unusual danger" within the knowledge of the hospital—would equally be taken to be a want of reasonable care if it led to accident inside the house of a surgeon or physician. The case of Weigall *v.* Westminster Hospital is a warning. The hospitals indeed, have been warned already. A year ago an elderly patient in a Yorkshire hospital, getting out of bed in the absence of the nurse, slipped on the polished floor and sustained injuries which accelerated his death. The coroner[1] commented on the danger of polishing the floor of a ward where elderly and infirm patients were accommodated, especially if the patients wore leather-soled slippers. A year earlier[2] the question of suitable hospital flooring was discussed in our columns in connexion with a report on hospital construction, compiled by an international congress. A floor covering should be both silent and safe, and, as we then ventured to say, the surface should not be one which by any process known to woman can be polished. We were thinking of the safety of house surgeons and nurses as well as that of patients. Mrs. Weigall's successful claim is a reminder that visitors also have to be considered and that their accidents, unless covered by insurance, may have a disturbing effect on hospital finance.

Obstructing a Coroner

It is a criminal offence to dispose of a dead body so as to prevent a coroner from holding an inquest. The offence varies greatly in seriousness. It can be aggravated by suspicions of murder, or, as appears from the following case at the Old Bailey last week, it can be a trivial matter meriting no grave punishment. An old man named Ellis disappeared on July 5th, 1934. About a year later his body was found in the cellar of a public-house in the Blackfriars-road. On the day of his disappearance he had visited the

[2] On the other hand, in answer to a question whether the Bill would "provide a bridge over which one will be able to pass and meet the other in the middle," he answered, "I think so, but on the other hand, you must remember that our views on the actual causation of disease, and our general guiding principles, and our form of treatment are all at complete variance with those of the medical school."

[1] THE LANCET, 1934, i., 1376.
[2] Ibid., 1933, ii., 392.

public-house and had fallen through the trapdoor of the cellar (which ought not to have been left open) and had thus met his death. The barman of the public-house, possibly afraid of being scolded for not having closed the trapdoor, disposed of the body by hiding it in the cellar. There was this to be said for the barman—he had just had to give evidence about another accidental death at the public-house and, being perhaps of a more sensitive nature than others who follow the same calling, he had flinched from repeating the experience of being a witness at a second inquest. The medical evidence established that Ellis's death was due to the accidental fall through the trapdoor; there was no suggestion of foul play. When Ellis's body was at length discovered, the barman made a full and frank statement which the police were able to accept as true. He was indicted for unlawfully disposing of Ellis's body with intent to prevent a coroner's inquest, when such inquest ought to have been held. He pleaded "guilty" and received the nominal sentence of three days' imprisonment, which, in the circumstances, meant that he was forthwith released from custody.

The particular offence with which the barman was charged is not committed unless an inquest ought to have been held on the body. This point was brought out in R. *v.* Purcy,[3] where members of a homeless family left in a hedge the body of a child. The child had been ailing and ill-nourished, but there was nothing to indicate that the death had been due to criminal negligence. The death would consequently not have been one for investigation by the coroner. In the Court of Criminal Appeal the Lord Chief Justice seemed to hold that the Purcy family had not committed the crime with which they were charged, because an inquest would not necessarily have been held. In the recent case of the barman, an inquest would presumably have been held upon the death of Ellis who fell through the trapdoor, but it looks as though the barman had an excellent defence. The Recorder accepted the statement that the barman had no real intention of committing any offence. An unlawful intention to prevent the inquest was, however, an indispensable ingredient of the crime. If the barman had no such intention—if, for instance, he hid the body to escape being scolded about the trapdoor—he was entitled to be acquitted, and he need not have pleaded "guilty."

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE OUTLOOK FOR NEW MEDICAL GRADUATES

NEARLY 200 degrees were conferred at the medical graduation at Edinburgh University last week, and Prof. R. W. Johnstone, F.C.O.G., in his address as promotor, was able to provide some interesting information and comments on the prospects of professional success at the present day.

The State, having made itself partly responsible for the health of the people, is, he said, finding itself more and more deeply committed, and future extension of the National Health Insurance Acts will probably lead to 90 per cent. of the population of the country being either "on the panel" or under public assistance schemes. The field of private practice is likely, therefore, to become greatly restricted, but as an offset to this there will be a considerable and probably disproportionate increase in the number of salaried appointments. The position of the voluntary hospitals, will inevitably be effected; the change is already in process, and the outcome is a matter of deep concern. The present system of providing free medical attention and accommodation for those who are in no real sense in the category of the necessitous poor must call for revision.

In success or failure, Prof. Johnstone said, character and personality counted for more than intellectual ability and still more than mere knowledge. He went on to give the results of his investigations concerning the degree of professional success achieved by the 1766 men and women who graduated as bachelors of medicine and surgery at Edinburgh from 1900 to 1909. Of these, 53 were killed or died in the War, and 268 have dropped out of the live roll, mainly by death; the Medical Directory still contains 1445 of the 1766 names. From his analysis Prof. Johnstone estimates that just under 3 per cent. have achieved distinguished success, 31 per cent. considerable success, and 55 per cent. a fair degree of success. There remain 11 per cent. who cannot be traced, many of whom are probably failures. One-third of the total, therefore, have achieved more than just a moderate degree of professional success. Eighty per cent. have entered general practice, and only 30 per cent. have taken the degree of M.D. One or more of the higher diplomas have been taken by 26 per cent. and the fellowship of one or other of the Royal Colleges by 16 per cent. One man is an F.R.S., 38 have become professors, and 68 are lecturers in universities of the Empire or in America. Fifty-five are on the staffs of teaching hospitals, and double that number on the staffs of large non-teaching hospitals in Great Britain. A total of 62 have become medical officers of health of large cities or counties, and 30 are superintendents of asylums. The regular Imperial Services have absorbed 192, two-thirds of them in the Army Medical Services. Of 100 women on the list, 60 have married.

The promotor pointed out that there is an impending glut in the medical market, but he did not think there was any occasion for alarm, since the supply was likely to adjust itself to the demand. In conclusion he said that the doctor whose aim is simply to do as much good to his patients and fellow men as he can, may thereby gain a serenity of mind which will make his life a complete and rounded success, quite independently of such matters as professional distinction and financial prosperity.

VIENNA

(FROM OUR OWN CORRESPONDENT)

THE NEW DISPENSATION IN MEDICINE

THE Government has long promised fresh legislation on health insurance and old age pensions as part of its reorganisation programme. Particulars of the new law were not made public in advance, for the present "autocratic" system of government has done away with parliamentary institutions, and the federal council can do no more than accept or reject the Bills presented to them by the government or ministries. It is even likely that the representatives of the medical profession sitting on this council (who were elected as well as nominated by the government) were neither asked nor allowed to express their opinion. The law came into force on July 1st

[3] Ibid., 1933, i., 1035.

after a transition period of three months. During this period, which was designed to familiarise the public and the authorities with the new system, the changes actually effected were very slight; passive resistance appeared to be widespread. The perpetrators of the law (if this expression may be used) evidently realised that it was not an ideal solution, for they have limited its working to a trial period of five years.

As soon as the law was published it was criticised and opposed, both by the medical profession and by the insured persons. In medical journals of differing standpoints it was emphasised that the results would be ruinous to the medical profession unless radical changes were soon introduced, and the justification of such complaints will soon be apparent. The chief aim of the new scheme seems to be economy in social expenditure; benefits for the insured persons and medical salaries are alike to be cut down. Allowances for medical treatment, accommodation in hospitals, benefits during sickness and convalescence and old age pensions have all been severely "axed," sometimes by as much as 40 per cent., and the effect on public health is bound to be unfavourable. Not only are the benefits of insured persons to be reduced, but sickness insurance is henceforth to be limited to the wife (or husband) of the wage-earner and to children under eighteen years of age. Old age pensions are being reduced by 25–40 per cent., and will be paid at sixty-five instead of sixty. The maximum payment, which is made to members with forty years' subscriptions, will be 280 Austrian schilling (£10 15*s*.) a month instead of 400 schilling.

The following regulations will affect the medical profession. Under the auspices of a central union called the Federal League of Social Insurance (Der Reichsverband der Social-Versicherungs-Träger) there will be a committee (Arbeitsgemeinschaft) in each county, corresponding to the present Krankenkasse or sick club. This will supply medical and dental aid, allot sick pay, and make financial arrangements with doctors, dispensaries, and other institutions. A special medical committee will deal with the appointment of doctors, and in coöperation with the main committee will settle any differences of opinion which may arise in the administration of the new regulations. The medical committee will consist of an equal number of representatives of the local medical organisation and the general insurance committee, but the chairman will be a layman, preferably a high official of the federal civil service appointed by the local government. Insured persons may choose their doctor or dentist from a panel of approved practitioners, admission to which is open only to Austrian citizens with a medical degree from an Austrian university. Insurance doctors must have done at least four years' medical work, including at least three years in a public hospital or sanatorium; they must have experience of surgery, obstetrics, and internal medicine, and have acted as locum tenents to a general practitioner for at least three months. Consultants must have had 4–5 years' training in their specialty in a recognised hospital; and dentists must have spent two years in a dental department and two years in private practice.

A candidate for admission to the panel must satisfy the authorities of his good citizenship and blameless professional behaviour. A novel feature is the condition that no doctor may be appointed to this list if he draws a fixed income of 12,000 schilling (£480) a year from other permanent medical employments or from other public sources. Nobody in the new State may derive a double income from public funds; but specialists are exempt from this condition. Even if the candidate has fulfilled all these requirements his admission to the panel service under the social insurance law is at the discretion of the medical committee, and it has been pointed out repeatedly in medical journals that this "discretion" is a very severe test of the impartiality of members of the committee. Not only may racial, religious, political and economic factors influence their decision, but also personal likes and dislikes.

Formerly a panel appointment carried with it either a fixed income for the sick-club doctor, or a sliding income per head. Now a fixed percentage of the income of each county committee will be devoted to the payment of the doctors on its panel, and this sum will have to cover all expenditure for medical aid. The services of the doctors will be paid according to a system of "points." Every visit, operation, consultation, or dressing will represent so many points, and the doctor's monthly salary will be decided by the number accumulated. The value of the point will fluctuate according to the amount of money available. But the point value for the workmen's Krankenkasse may be different from that in the employee's Krankenkasse, and the point value may (and most likely will) vary from year to year. The medical committee is entitled to discard this system, and in any suitable case establish instead for the benefit of an individual doctor a fixed salary. This may be done in any district or part of a district for special reasons which are again left to the discretion of the committee Thus we find again those opportunities for differentiation, discrimination, and arbitrary decisions among the panel doctors which have already been bitterly criticised in the medical press.

The main object of the new law is admittedly to save expense, and it is certain that a number of doctors will be gradually dismissed from the Krankenkasse. The following regulations have been drawn up for such dismissals: a practitioner with less than ten years' service may be dismissed within one year after the new law comes into force. He is, however, entitled to compensation depending on the length of his service, the maximum being one year's salary. If he is later readmitted to the panel, he must refund this sum in monthly instalments. A practitioner with more than ten years' service has hitherto been entitled to a pension. All previous agreements to the effect that a panel physician may not be dismissed except by reason of gross default are declared invalid, and a pensioned physician who is readmitted to the service under the new law receives no pension during the time of his service. The administration of these rules is also in the hands of the medical committee, and the doctor has no right of appeal.

These brief notes on the new law are proof enough of its spirit and contents. They show the great power of the committees and the defenceless position into which the profession has been manœuvred. This impression is intensified by the fact that under the new law there is no longer the hope of a pension after prolonged service. The chief advantage which the new regulations bring is the abolition of all fixed salaries, and that, nominally at least, the chances are now the same for all. Another advantage is that the patients may choose the doctor they have most confidence in. But on the other hand, the doctor may only prescribe approved remedies, and will have to give up many medicines to which he has

become accustomed, for the list of drugs has also been cut down. Taking it all in all we see that our profession is hampered, its expectation of a decent payment for its work are nullified, and the doctors themselves are threatened by proletarisation since private practice is dwindling away. Indeed, as several medical journals emphasise, the necessity for alterations in the law, even before the lapse of five years, is obvious, for although the "transition" period of three months has passed without radical changes in the staff of the existing sick-clubs many doctors fear the coming autumn. And a man who loses his post in the panel service will hardly be able to find a living elsewhere.

CORRESPONDENCE

THE SMITH-PETERSEN NAIL

To the Editor of THE LANCET

SIR,—The directing apparatus for the insertion of Smith-Petersen nails, described by Mr. Eric Lloyd in your last issue, shows great ingenuity; complicated as it may be he has succeeded in greatly simplifying the apparatus of Sven Johannsen. Nevertheless, from experience with other types of directing apparatus one is driven to the conclusion that this is yet another instrument subject to instrumental error which introduces unnecessary complications and difficulties into the technique of insertion of the nail.

There is only one drawback to the use of Smith-Petersen's nail for fractures of the neck of the femur. Unless the nail enters exactly into the centre of the proximal fragment there is a danger of refracture of the head of the femur with redisplacement. While it is true that Mr. Lloyd's apparatus by controlling alignment in two directions aims at accurate centralisation of the nail, one feels that the calculation of small angles on wet films, and the setting of an instrument of this type must at some time or another lead to sufficient error to allow a nail to lie somewhat eccentrically. In such a case even although its alignment is perfect the sector of bone holding the nail in the head will be too small to overcome the danger of refracture.

Not only does one feel that such an apparatus may possibly lead to error, but the technique which I have developed for the insertion of the nail over a guide through an open incision has now become a matter of the greatest simplicity. It is an operation associated with very little shock and with the loss of only an ounce or two of blood; it can be completed in thirty to forty minutes, and I have now performed it in fifty cases including a high proportion of patients of 70 to 80 years of age suffering from chronic bronchitis, auricular fibrillation, prostatic enlargement, uræmia, pernicious anæmia and all of the diseases of old age, with a mortality of only 6 per cent. which is much lower than one used to accept as inevitable whatever treatment was adopted.

Some years ago one felt that a true subcutaneous insertion might be of value in a group of patients who could not withstand the shock of an ordinary operation, and Mr. Lloyd's suggestion falls very much closer to this ideal than the Svan Johannsen operation, which in fact is not a subcutaneous procedure at all. With the improvement in the technique of the open operation, however, I begin to doubt whether there is any scope for the subcutaneous insertion. In the last four years I have operated on 40 of the 46 cases I have seen; the remaining six cases were aged 80 to 92, and I feel that even a subcutaneous insertion would have proved too much for them.

One feels therefore that a blind instrumental insertion with its risk of imperfect and inaccurate centring and the delays and difficulties of X ray control in the operating theatre cannot compare with the 30-minute operation associated with so low a mortality in such an unpromising group of patients.

I am, Sir, yours faithfully,

Liverpool, July 22nd. R. WATSON JONES.

ARTIFICIAL RESPIRATION

To the Editor of THE LANCET

SIR,—Dr. Mijnlieff's article in your last issue, in which the Schäfer method of artificial respiration is depreciated, is one with which I believe that nearly all competent British and American authorities will disagree.

I have been a member of nearly all of the commissions and committees in America that have studied and reported on this subject during the past quarter of a century, and have been in close touch with the application and results of their investigations and reports. All have recommended the Schäfer method above all others for general use. How completely American opinion, supported by an enormous experience, is unanimous in support of the Schäfer method is indicated by the fact that more than 13,000,000 persons—police, firemen, coastguards, boy and girl scouts, school and college students and others—have been trained to administer this method, and no other is taught to them.

The advantages of the Schäfer method are indeed particularly great for the operator, both for immediate application and for prolonged maintainance. For the victim no method of manual artificial respiration can do more than to induce rhythmic expirations. This is true, as I know from my own investigations and experience, no matter how much the writers whom Dr. Mijnlieff quotes may claim the contrary. Active respiration cannot be induced by any form of manual manipulation. The inspirations that occur between the forced expirations are due solely to the tonic elasticity of the victim's own muscles—a topic that I have discussed in a paper appearing elsewhere (p. 178). In that respect the Schäfer method does at least as much as any other manual method if the arms of the victim are drawn forward and placed so that the head rests on one forearm.

For these reasons I beg to differ from the statement in your editorial that "Dr. Mijnlieff is able to make out a good case for preferring it [the Silvester method] to that of Schäfer."

The one method that may, perhaps, prove to have some advantages over Schäfer's is that recently described by Eve.[1] But as that method requires at least an extemporised see-saw, it falls perhaps somewhat outside of the topic of manual artificial respiration.

I am, Sir, yours faithfully,

London, July 20th. YANDELL HENDERSON.

[1] Eve, F. C.: THE LANCET, 1932, ii., 995; Killick, E. M., and Eve, F. C.: Ibid., 1933, ii., 740.

VIRUS BODIES IN THE PERICARDIAL FLUID OF RHEUMATIC FEVER

To the Editor of THE LANCET

SIR,—The problem of the cause of rheumatic fever, reanimated in this country by the recent work on virus bodies is, we must all agree, of international importance. I think that in advancing any such study, the various views should be expressed, although in the spirit of progress and not of antagonism.

Dr. A. E. Coles, in your last issue, has added to the literature of the virus bodies in the pericardial fluid of rheumatic fever, and in his comment writes as follows: "From a clinical and pathological aspect both these diseases are more closely associated with a virus than a bacterial origin." He is alluding to rheumatic fever and rheumatoid arthritis.

This is one of those general statements easily accepted by many, and also important. Accordingly, having for many years at first hand studied the clinical and pathological aspects of acute rheumatism in childhood I venture to write this sentence: Acute rheumatism in childhood shows clinically and pathologically *its close association* with a bacterial origin. This does not exclude the possible importance of a virus. It may be—I do not know—that these virus bodies mark a further step in our knowledge of all infective processes, but that both clinically and pathologically acute rheumatism in childhood shows the *closest possible* association with a bacterial origin I have not the slightest doubt, and, further, continental and American investigators are numerous who would support this statement.

I am, Sir, yours faithfully,

July 20th. F. JOHN POYNTON.

THE MEDICAL DIRECTORY

To the Editor of THE LANCET

SIR,—To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.

We are, Sir, yours faithfully,

J. and A. CHURCHILL, LTD.

40 Gloucester-place, Portman-square, London, W., July 15th.

BLEEDING OF TRANSFUSION DONORS

To the Editor of THE LANCET

SIR,—Dr. Shackle writes two days after the publication of our paper practically dismissing our method as unnecessary or useless. He has not thought it worth while fairly to try out the technique *as described* before rushing into print to condemn it. We would not have deemed this hasty criticism worthy of reply were it not for the fact that this is the second time we have suffered attack from Dr. Shackle in this way. In your issue of April 27th we published an article on "Continuous Drip Blood Transfusion." This also evoked from Dr. Shackle a letter of disparagement. On that occasion we forebore to reply hoping that readers would note Dr. Shackle's admission in his opening paragraph that he had no experience of what he criticised and find in it a measure for evaluating his observations. In his two letters he has found no single good word for either of our contributions. We would suggest to him that to publish destructive criticism of new methods without trial of them is as unfair as it is misleading. Criticism after reasonable test is legitimate and welcome.

We do not propose to meet Dr. Shackle's individual assertions with counter assertions. We would prefer to ask less biased readers to try the method for themselves and then to judge our claims and Dr. Shackle's criticisms. They will not achieve anything so astounding as "a stream of blood the size of an ordinary lead pencil," which Dr. Shackle obtains from a serum needle, and which seems to be a true instance of "yielding more blood than its lumen will carry." They will find, however, we think, that as a rule they can obtain a pint of blood inside five minutes with ease.

We are, Sir, yours faithfully,

H. L. MARRIOTT,
H. KEKWICK.

The Middlesex Hospital, London, W., July 21st.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

M.O.'S AND CIVIL HOSPITALS

By Order in Council of August 11th, 1903, candidates for commissions as medical officers in the Navy who, at the time of passing the qualifying examination for admission, hold or are about to hold posts as resident medical or surgical officer in a recognised civil hospital, may be allowed to serve in these appointments after the date of entry into the Royal Navy. By an Order in Council published in the *London Gazette* of July 19th, 1935, this provision is made applicable to candidates who enter the Naval Medical Service as surgeon lieutenants for short service. The time spent in the civil hospital appointment is to count for purposes of seniority, pay and promotion, and retired pay or gratuity on retirement, in the manner prescribed in the Order in Council dated June 29th, 1934.

Surg. Capts. E. Moxon-Browne to *Victory* for R. N.B.; and J. G. Danson to *Pembroke* for R.N. Hospl., Chatham.

Surg. Cmdrs. J. C. Brown to *Royal Sovereign* and to *Barham*; L. F. Strugnell to *Royal Sovereign*; J. Kirker to *Victory* for R.M. Infirmary, Portsmouth; H. E. Scargill to *Iron Duke*; A. de B. Joyce to *Victory* for R.N.B., and to *Excellent*; F. G. Hunt to *Glorious*; G. E. Heath to *Courageous*; and J. C. Kelly, D.S.C., to *President* for course.

Surg. Lt.-Comdrs. E. R. Sorley to *Victory* for R.N.B.; and J. Cussen to *President* for R.A.F. Medical Officers course; F. G. V. Scovell to *Pembroke* for Chatham Dockyard; F C. M. Bamford to *Pembroke* for R.N.B.; J. M. Sloane to *Drake* for R.N.B.; J. J. Keevil to *Victory* for Haslar Hospl.; W. R. S. Panckridge to *Nelson*; and A. D. Sinclair to *Cormorant* for Gibraltar Dockyard.

Surg. Lt.-Comdr. (D) T. Hunt to *St. Vincent*.

Surg. Lts. J. M. Holford to *Valiant*; and S. C. S. Cooke to *Deptford* on commg.; B. R. Alderson to *Glorious*; D. C. Robson to *Bridgewater*; S. J. van Pelt to *Royal Sovereign* and to *Barham*; M. Cay to *Royal Sovereign*; and E. B. Bradbury to *Endeavour*.

Surg. Lts. (D) F R. McN. Willis to *Drake* for R.N.B.; W. L. Mountain to *Royal Sovereign*; W. H. Foy to *Pembroke* for R.N. Hospl.; and E. F. St. J. Lyburn dna D. Simpson to *Australia*.

The following promotions have been made: Surg. Lt. E. H. Parkinson to be Surg. Lt.-Comdr.; Surg. Lt. (D) R. Symmons to be Surg. Lt.-Comdr. (D); and Proby. Surg. Sub.-Lt. K. E. O. Ringdahl to be Surg. Sub.-Lt.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. (D) R. Symmons to be Surg. Lt.-Comdr (D).

Surg. Lt. E. H. Parkinson to be Surg. Lt.-Comdr.

Proby. Surg Sub-Lt. K. E. O. Ringdahl to be Surg. Sub-Lt.

Surg. Lt.-Comdr. J. D. Simpson to *Excellent*.

Surg. Lt. D. R. Goodfellow transferred from list 1 to list 2 of the Mersey Div.

Surg. Sub-Lt. D. Shute promoted to Surg. Lt.

ROYAL ARMY MEDICAL CORPS

Short Serv. Commissions.—Lt. W. T. Bermingham to be Capt.

L. C. Card to be Lt. (on prob.).

REGULAR ARMY RESERVE OF OFFICERS

The undermentioned having attained the age limit of liability to recall, cease to belong to the Res. of Off. :—

Lt.-Col. T. J. Wright, D.S.O.

Maj. R. B. Hole.

MILITIA

Maj. H. C. Bazett, O.B.E., retires on attaining the age limit, and retains the rank of Maj.

TERRITORIAL ARMY

Capt. W. C. Jack resigns his commn. on account of ill-health.

Supernumerary for service with the O.T.C.—Capt. W. M. Arnott, from R.A.M.C., Gen List, to be Capt.

Capt. J. J. D. Naismith to be Maj.

Lt. J. A. Blain to be Capt.

R. J. V. Battle and R. D. Burn to be Lts.

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt. C. C. Taffs, from Active List, to be Capt.

ROYAL AIR FORCE

Wing Comdr. F. J. Murphy to R.A.F. Depot, Uxbridge, for duty as Senior Medical Officer and Officer Commanding R.A.F. Officers' Hospital, vice Wing Comdr. H. B. Porteous.

Wing Comdr. H. Burnet Porteous is placed on the retired list.

Flight Lt. A. S. Burns is placed on the retired list on account of ill-health.

Dental Branch.—Flying Off. H. M. G. Williams to Medical Training Depot, Halton, on appointment to a non-permanent commission.

Flight Lts. L. S. Everett, G. Gilchrist, and I. Mackay have been selected for permanent commissions in the Medical Branch, subject to physical fitness.

INDIAN MEDICAL SERVICE

Lt. (on prob.) J. F. A. Forster is restd. to the estabt.

The undermentioned appts. have been made in India :—

A.D.H.—Maj. E. W. Wade, D.S.O., R.A.M.C.

D.A.D.P.—Maj. H. J. Benstead, M.C., R.A.M.C.

The undermentioned officers have vacated appts. in India :—

D.A.D.F.—Maj. A. Mearns, R.A.M.C.

A.D.H.—Lt.Col. E. G. S. Cane, D.S.O., R.A.M.C.

PUBLIC HEALTH

A Salaried Service of Midwives

THE London County Council on Tuesday approved the proposal of the Joint Council on Midwifery to establish a salaried service of midwives. The report of the Joint Council had been forwarded to the L.C.C. by the Ministry of Health and had been considered by its hospitals and medical services committee. The Joint Council recommended in brief that the nursing of every maternity case should be conducted by a qualified midwife and that unqualified persons should no longer be permitted to nurse maternity cases for gain, it being laid on the local authority to provide midwives to act as maternity nurses for parturient women under a doctor's care unable to afford a trained attendant. The Joint Council proposed that a salaried service should be established under the local supervising authority (Midwives Acts) in all areas not already served by salaried midwives but without interfering with the continuance in practice of independent midwives. The Joint Council further proposed that midwives not accepted for salaried service or unfitted by age or infirmity should be entitled to compensation or pension. The L.C.C. supported the recommendation to establish such a service but, on behalf of the hospitals committee, Dr. Somerville Hastings was unable to accept the principle of compensating inefficient midwives. In the course of the debate Dr. Barrie Lambert stated that the present service was better than that of ten years ago by probably at least 50 per cent. although this improvement in the service was not reflected in any improvement in the mortality of childbirth. An amendment to ask the Ministry of Health to formulate a complete scheme for better organisation of maternity service in London was defeated. Sir Kingsley Wood told a deputation on Tuesday (p. 231) that he was awaiting the views of the L.C.C. and other local authorities before acting. It may well be he will take a more generous view in the matter of compensation, for without this it seems unlikely that any scheme will prove acceptable to organised midwives.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 13TH, 1935

Notifications.—The following cases of infectious disease were notified during the week :—Small-pox, 0 ; scarlet fever, 1461 ; diphtheria, 910 ; enteric fever, 49 ; acute pneumonia (primary or influenzal), 393 ; puerperal fever, 33 ; puerperal pyrexia, 102 ; cerebro-spinal fever, 22 ; acute poliomyelitis, 8 ; acute polio-encephalitis, 4 ; encephalitis lethargica, 5 ; dysentery, 7 ; ophthalmia neonatorum, 85. No case of cholera, plague or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 19th was 2661, which included : Scarlet fever, 747 : diphtheria, 964 ; measles, 40 : whooping-cough, 417 ; puerperal fever, 26 mothers (plus 7 babies) ; encephalitis lethargica, 270 ; poliomyelitis, 1. At St. Margaret's Hospital there were 26 babies (plus 14 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns including London, there were no deaths from small-pox or enteric fever, 17 (1) from measles, 5 (1) from scarlet fever, 14 (5) from whooping-cough, 30 (1) from diphtheria, 50 (8) from diarrhœa and enteritis under two years, and 19 (3) from influenza. The figures in parentheses are those for London itself.

Liverpool reported 7 deaths from diarrhœa, Hull and Birmingham each 3, no other town more than 2. Of the fatal cases of measles 4 occurred at Liverpool, 3 at Birmingham. Four deaths from diphtheria were reported from Liverpool, 3 each from Reading, Leeds and Birmingham. Leeds also reported 3 deaths from whooping-cough.

The number of stillbirths notified during the week was 300 (corresponding to a rate of 42 per thousand total births), including 45 in London.

AWARD TO DR. W. H. PARK.—Prof. Park, director of the bureau of laboratories of the New York City Health Department since 1894, has been selected as recipient of the Theodore Roosevelt medal for 1935, awarded for distinguished service in the administration of public office. He was the first to introduce diphtheria antitoxin into the United States and to make it available to the public, and he has been a pioneer in the discovery of the part played by carriers in the spread of infectious disease.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

PUBLIC HEALTH SERVICES

Sir Kingsley Wood's Review

On July 17th, in Committee of Supply on the Civil Estimates, SIR KINGSLEY WOOD, Minister of Health, sought approval for a total net estimate of £20,102,000, an increase of £313,000 on last year. A great part of the increase was, he said, due to the steady increase in housing grants, owing to the increased activities of local authorities on slum clearance; the remainder to the cost of the extra staff required in connection with slum clearance, &c., and to provision for restoration of salary cuts made in 1931. He went on to review briefly some of the main developments in health affairs of the last 25 years.

The great thing to note, he said, had been the awakening of the national conscience on health and housing affairs. There had undoubtedly been a widening of human compassion and the coöperative spirit. The nation itself had learned in many ways the supreme art of right living. Greater common sense was being shown in health matters, in clothing, dietary, and in the increasing use of daylight, open air, leisure and recreation, with the result that to many people in this country life was becoming longer and better—the greatest gift that civilisation could give. In 1910, for instance, the death-rate for all ages in England and Wales was 13·5 per thousand persons and 95,000 infants died under one year of age. Last year the total death-rate had fallen to 11·8, and the loss of infant lives under one year of age was reduced to 35,000, the lowest infant mortality rate on record. It was estimated that when Queen Victoria came to the throne the English boy child at birth had an expectation of 40 years of life. In the eighties it had risen to 44, and in 1910 to 51. In 1932, a generation later, it was 59. The growth of knowledge in medicine and surgery through all that period had been continuous. Typhoid fever, for instance, had been brought under control; it was at one time the scourge of nations and armies. The discovery of insulin in 1922 had revolutionised the treatment of diabetes. Orthopædic surgery was preventing the onset of crippling and treating cripples with new knowledge and by new methods. But cancer, still accounted for some 60,000 deaths last year, and a less malignant enemy, though regarded by many as Public Health Enemy No. 1, was the common cold.

The creation of the scheme of national health insurance had been one of the most remarkable developments in public health. The value of the benefits disbursed since 1911 was £480,000,000. In the last 10 years, over £150,000,000 had been disbursed on the statutory sickness and maternity benefits and over £90,000,000 in medical benefits. The scheme had survived the strains of the War, and the prolonged depression and unemployment of recent years. It was true that it had been found necessary to underpin the scheme, and to take steps to preserve its actuarial solvency. But it had stood the test of three valuations and it had been found practicable to allot £53,000,000 in additional benefits. Our national insurance system had now been adopted by 12 other countries from Norway in the north to Japan in the east.

But there was the unsolved problem of the unreduced maternal mortality rate. Its solution would require patience, constant research and active endeavour. The Departmental Committee which reported in 1932 suggested that at least one-half of the deaths might be prevented. The rate varied remarkably as between one area in the country and another. In West Ham, a poor borough, with a population of over 280,000, the maternal mortality rate over the period 1924/33 was 2·48 per 1,000 births. In Nottingham, a borough better off in many respects, and with practically the same population, it was 3·74. In Westminster, it was 5·63; in Marylebone 3·78; in Kensington 3·51; in Hampstead 3·48; and in Poplar 2·63. There had been no relaxation in the maternity and child welfare services on financial or other grounds. The number of visits paid by health visitors to expectant mothers showed an increase of 60,000, 240 more ante-natal clinics were provided and the number of women who attended those clinics rose by 49,000. The total number of attendances rose by 242,000, and the total number of women admitted to maternity beds in institutions provided or subsidised by local authorities rose by 29,000. They must, he added, go on vigorously with this work. They must persevere in the investigation of the causation of maternal mortality. He attached great importance to the midwifery service. Midwives attended approximately 60 per cent. of the confinements in this country, but their remuneration was low, and the poor pay and prospects reacted on the quality of entrants.

Sir KINGSLEY concluded with a summary of progress in rehousing the nation. There had been a record progress in the clearance of the slums. For the first six months of 1935, new houses for slum replacement had been sanctioned at the rate of over 6,000 a month in England and Wales, and at the end of June nearly 100,000 houses had been approved for this purpose, of which some 50,000, sufficient for about 240,000 persons, had already been completed. This was a great beginning of better things, especially when it was remembered that during the years 1875 to 1933, only 200,000 persons living in slum houses had been rehoused. There was further work still for the local authorities in the construction of new dwellings for families living in overcrowded conditions, in accordance with the proposals now before Parliament which he hoped would shortly be on the Statute Book.

VIEWS AND CRITICISMS

Mr. GREENWOOD said that, while it was true that there had been a very substantial improvement in the standard of the health of the people, he was surprised that no reference had been made to the question of malnutrition. Malnutrition was one of those subtle and creeping diseases the effects of which were not immediately seen, but from which a subsequent generation might seriously suffer. The houses built during the last four years would not, he said, bear comparison as regarded standards with the houses that were built before.

Mr. JANNER said that, although public attention must needs be drawn to the serious problem of maternal mortality, it was extremely important that the impression should not be created that child-bearing in itself was dangerous. The Departmental Committee on maternal mortality stated categorically that half the deaths in childbirth could have been prevented had a reasonable degree of skill been brought to bear upon the management of the cases, and adequate facilities for treatment been provided and utilised. Was the Minister satisfied, he asked, that the maternity and child welfare authorities were dealing actively and thoroughly with the position, and that the 174 who reported that they did not propose improvements were justified in their attitude, seeing that the mortality rates were so high? There was a strong feeling that post-graduate courses should be generally provided for practising midwives, that the salaries of midwives should be very much higher, and that midwives in rural areas should be subsidised and their numbers increased, so that they were more readily available and did not have to travel great distances. There was also a strong feeling that a doctor should be employed in every case, even though there might not be complications in the first instance, so that the doctor might be available in the event of any complication arising; and that obstetrical specialists should be available for all pregnant women. Mr.

JANNER quoted Dr. Veitch Clark's view that midwives should form part of the externe practice of the maternity units of hospitals. They should be afforded the opportunity of living in a hostel or a home, should have an income guaranteed to reach a certain level by the local authority, and be linked up with ante-natal and post-natal clinics, and the hospital. During the last four years, there had been in Manchester a four-fold increase in ante-natal work; 50 per cent. of the pregnant women were now being seen ante-natally by the public medical service, and this increase in supervision had coincided with a fall in the death-rate from puerperal sepsis from 1·7 to 1 per 1,000. Mr. JANNER asked the Ministry to urge local authorities to provide obstetricians who, day by day, would deal with cases definitely from the stand-point of a specialist. Full-time clinic officers should be appointed in as many instances as possible, and adequate hospital accommodation provided to enable them to follow each case when the actual time of confinement came.

Sir FRANCIS FREMANTLE paid tribute to the work inaugurated by Sir George Newman; he welcomed the new chief medical officer, and asked for an assurance that his status remained unimpaired as a secretary to the Ministry of Health, with direct access to the Minister. During the past 25 years, he said, there had been a great change in the understanding of infectious diseases. In order to exterminate the microbe, they had isolated the patient, until it was shown that the same germ might exist in healthy carriers, and that at one time a microbe did not seem to do any harm and at another was brought suddenly into activity by a cold, a chill or an injury. It was the soil and the variations in the soil that mattered. What they had to do was to aim constantly at improving the physique and the health of the individuals that made up the population. The Ministry of Health, through the local authorities, had various means in which the promotion of physical health could be assisted, and he hoped the process would be continued now through the whole machinery of public health. They must recognise, too, that shortage of nutrition, more particularly among mothers, was bound to affect the next generation. Happily, there was little evidence of any increase of ill-health, either mortality or infectious sickness, from medical inspection in the schools in the depressed areas. There was malnutrition in particular families and districts where less attention was paid to the preparation of food. That was a point he hoped the Ministry would pursue with the Board of Education. More important than the selection of proper food was the power to cook it properly; a generation had grown up entirely ignorant of the art of cooking. To deal with maternal mortality, legislation, he said, would be required. The profession of the midwife must be made really attractive as a profession to the kind of girl that they wanted to have for this important service. He described the Rochdale experiment where, in the years 1932 to 1934, an intensive campaign had reduced the rate from 10 per thousand to 3·9. The same thing was repeated in the Rhondda Valley, where a special campaign, begun 18 months ago, had reduced maternal mortality to a third by paying attention to what everyone ought to pay attention to in the matter of confinements. Results could often be obtained by using existing machinery, but they had to bring machinery and an elastic mind together.

Mr. WEST called attention to the borough of Kensington where the infantile mortality last year was 93 per 1000, which was 50 per cent. worse than the average for London. The death-rate in North Kensington was 102 per 1000 compared with the rate in one East End borough of not more than 60 per 1000, in Poplar of 62 per 1000 and in Hackney of 54 per 1000. For the last ten years the death-rate in North Kensington and Kensington had been enormously above the average rate for Great Britain. There were one or two wards in Kensington which had a death-rate last year of 120 per 1000. If he had time he could show that not only the infantile death-rate but the diseases rate in respect of tuberculosis, fever, diphtheria and pneumonia averaged from three to four times that for London. Let the Government, he said, put some ginger into the councils who would not do their duty.

Mr. LEVY appealed to the Minister of Health to see that the water supplies of the country were improved.

Dr. ADDISON said he was greatly comforted to hear the Minister say that he would take active steps to combat maternal mortality. They all knew that the training of midwives and so forth would take time, but by a few years of active work he believed that Sir K. Wood or his successor would be able to bring down the maternity death-rate. But he wanted to call attention to a matter of first-rate national importance. In the report on the school services in 1933 the concluding sentence ran:—

"The physiological deterioration of the unemployed may appear at any time although it has not yet in any general degree appeared."

Dr. ADDISON believed that dramatic evidence of this physical deterioration was now emerging. He agreed that this deterioration was difficult to define; at the same time malnutrition began to appear gradually among children in the pre-school years, so that when old enough to go to school one began to find something distinctive in their condition. He said:

The medical officer for Breconshire examined 2000 children in 15 schools in July, 1934, and he found that the "under-weights"—children of five classified as being under-weight from depressed areas—numbered half as many again as those from the areas which were not regarded as depressed. In Burnley the medical officer reported that the percentage of malnutrition among children had risen from 1·4 per 1000 in 1929 to 8·3 in 1933, notwithstanding the provision of free meals.

The report of the Preston medical officer contained this:

"Put scientifically, the industrial situation has deprived people of first-class proteins, fats and vitamins. In plain words, bread, jam, margarine and tea have taken the place of milk, meat, eggs and fresh fruit. In the districts where unemployment is most marked the results of poverty are very definitely reflected in every class of the school. Taken as a group the children are undersized, pale, listless, flabby and mentally dull."

In Pontypridd the medical officer's report stated:

"Long-continued unemployment in the basic trades has led to a large number of families becoming dependent upon transitional payments or public assistance. There is imminent danger of this continued low level of subsistence leading to malnutrition and physical deterioration among the children of the unemployed."

These were a fair sample of the reports which had emerged in the last 12 months or so when there had been time for the malnutrition associated with unemployment to begin to make itself manifest. He would urge that the report of the President of the Royal Society and other scientists that was made to the Government last year on the nutrition of children and kindred subjects should be published.

A most precise inquiry had been conducted at Newcastle among the children of those who had been out of work and of those who were more well-to-do.

Among the well-to-do 25 per cent. of the children were above the normal height, whereas in the industrial or poorer classes only 2 per cent. were above, and 47 per cent. were below it. A remarkable thing had emerged during the last two or three years from these nutritional inquiries in the poorer areas, and that was the wide extent of anæmia among children. It arose only gradually and imperceptibly, gradually developing as a result of improper or insufficient dietary. In the Newcastle case a certain standard was taken. Twenty-three per cent. of the industrial classes and those who had been unemployed were below a very low standard. None of the other children were below and 75 per cent. of them were above it. In this inquiry, Dr. Spencer first came across these children by accident, because he was looking out for cases of rickets to treat

with the modification of a new scientific remedy. In 1921 and 1923 it was very difficult in hospital out-patient rooms to find rickets; but in Newcastle 44 cases of rickets were found quite easily. In the first 40 cases, as they came in, when their family circumstances were traced back, in every case the parents were out of work. Cases throughout the country which had been investigated all indicated the same kind of thing, that about 60 per cent. of the expenditure on food of the poorer people was spent on cereals, bread and so on, which did not contain certain elements necessary for full healthy development, and the absence of which explained rickets, dental caries, pyorrhœa, and so on to a large extent. These people could not afford eggs, milk, fresh fruit and vegetables.

If, said Dr. Addison, the feeding of the unemployed and the allowances to be made by the new Board were accompanied by a proper diet policy, he would undertake to say that in a few years' time the average stature of British children would be up by, say, a couple of inches, and they could wipe out rickets together with 50 per cent. of the dental caries and pyorrhœa.

Mrs. TATE said the spending of money alone would never save one mother's life in the country. The maternity mortality problem was not as simple as that. Medical knowledge had advanced out of proportion to the availability of that knowledge to the public, which would come when they had a proper coördination of services, proper continuity of services, and, above all, proper training. In the area served by Guy's Hospital the maternal mortality figures had been brought down to one per thousand because there was a trained staff attending the people. The position in the country to-day was the danger of a less trained staff. Even Guy's students and midwives were getting only half the material on which to learn laid down as a minimum by the General Medical Council. Ante-natal and post-natal clinics were useless unless staffed by experts. One of the main faults lay with the appointment boards of hospitals which insisted before they gave good jobs to nurses that they should have a C.M.B. certificate, whether or not they intended to practise midwifery. If the small supply of material was used by nurses who were never going to practise midwifery it meant taking it from those who were. Mrs. Tate referred to the report of the Committee on Fractures, which showed a complete lack of organisation in this country in regard to fractures in almost all the general hospitals, with serious loss of money not only to the workmen themselves, but to the insurance companies. There were two well-organised hospitals for fractures in this country: Ancoats Hospital, in Manchester, and the Liverpool Infirmary. To quote only one example: in 482 cases of Colles's fracture in organised hospitals the disability period averaged seven weeks, and the number of cases permanently incapacitated was two. In unorganised hospitals, in 38 cases of the same fracture, the average period of disability was twenty-nine weeks, and the number of cases permanently incapacitated was nine. Those figures gave serious cause for thought. She hoped pressure would be brought through the Ministry and the insurance companies to see that a continuous and efficient service for accidents was inaugurated. One of the causes of ill-health among women in the urban and industrial areas was, said Mrs. Tate, the tremendous amount of abortion. Hon. members might or might not approve of birth control clinics, but let them face what was going on.

Viscountess ASTOR said the fall in the birth-rate meant that they had to take particular care of the children that were born. About 80,000 children were born each year, and of that number 2500 were still-born, 2700 died under the age of 1 year, 6700 died between the ages of 1 and 2, and 6600 died between 1 and 5. Those figures were too high. It was in this connexion that the infant welfare centres were so important, but although this country was ahead of nearly every other country in the world in that respect it had not enough infant welfare centres. There were 1,750,000 children between the ages of 2 and 5, and of that number 200,000 lived in overcrowded conditions of 3 or more persons per room. Out of every 100 school-children examined 15·9 needed medical attention, 15·4 needed observation, nearly half showed rickets. They must increase the number of infant welfare centres and open-air nursery schools. They must face the fact that a high percentage of maternal mortality was due to attempted abortion. There was only one ante-natal clinic for every 5500 women of child-bearing age, and some of these clinics were not properly distributed. How many local authorities were prepared to make any provision for scientific birth control? Ignorance was the chief cause of the practice of abortion. Women were unable to get advice. Local authorities had been allowed to give such advice since 1934, but of the 1200 local authorities only 60 had clinics, though it was true that about 150 more referred patients to voluntary agencies and there were 54 voluntary clinics in England and Wales. A great deal of suffering could be prevented.

Mr. BATEY referred to a letter of Dr. G. F. Walker, of Sunderland, to the *Times* of Dec. 11th, 1934, which led to an enquiry by the Ministry of Health. By far the worst part of the County of Durham referred to in Dr. Walker's statement was the south-west, but no enquiry was held there into the alleged malnutrition and deterioration. There was no doubt in his mind that in that county at the present time thousands, including children, were suffering from under-nourishment. He urged a fresh enquiry.

Dr. HOWITT called attention to the work done by the almoners attached to hospitals. There were at present, he said, many people who called themselves almoners, and who did excellent work but were not trained almoners as he would wish them to be. In hospitals to-day, as far as he knew, there was nobody who had a true knowledge of all that could be done for a patient. In these days they must have expert knowledge of all the charitable help and government help open to a patient. So far as he knew, no man or woman on the staff of a hospital had that knowledge to-day. Neither had any of the hospital officers. To ensure that hospital almoners should be able to see that there was no waste in hospitals, the Institute of Hospital Almoners selected the right type of person to be almoners. These persons had to obtain a diploma of Social Science, which meant two years' work and the passing of examinations, say at the School of Economics. They then had to work for four months in a charity organisation society and subsequently for ten months in a hospital almoner's office. After a training lasting a little over three years such a woman, who to start with must be well-educated, had really an idea how she could do scientific social service. Dr. Howitt instanced the value of hospital almoners in obtaining charitable or governmental assistance for patients who would not otherwise be able to carry out the medical or surgical advice given them by the hospital staff. In cases of tuberculosis, he said, it was essential that the relatives of a patient should be brought to the hospital in order to ascertain whether they had contracted the same disease. The almoner brought all these contact cases to the hospital to be examined, and she also saw that the home was made fit for persons who were subject to tuberculosis to be properly looked after. He hoped the Ministry would see that all hospitals in this country had properly qualified almoners attached to them.

Dr. O'DONOVAN said he had a familiar working knowledge of the poor, and he had never got the impression that either the poor or the rich had, since the War, been unfamiliar with birth control knowledge. The supply of birth control goods and apparatus was a competitive and big business. To suggest that abortion was practised, leading to the frequent death of women, and this through lack of birth control knowledge, was in his opinion a misreading of the facts as they were. There was to-day a

tremendous propaganda to the effect that marriage need not be associated with the production of children, and once that idea became bitten into the public mind there was a demand that contraceptive practice should be efficient. The demand for efficiency became almost a passion, and if birth control through contraceptive practice failed, then the woman who found herself pregnant demanded that abortion should complete what birth control had failed to do. The one grew out of the other; and when they added to that, through the same advocates, the policy of sterilisation they had a trilogy of birth control, abortion, and sterilisation which, if imposed on an unwilling Ministry, would turn it from a Ministry of Health to a Ministry of Death.

Lieut. Col. MOORE said there were very few plastic surgeons, and they were overwhelmed by demands upon their skill and service. Why should they not devote some of the resources at the disposal of the Ministry to assist in the formation of a special hospital where people disfigured by nature or by accident could find treatment. He suggested this should be done in conjunction with the L.C.C., and other county hospitals.

Mr. STOREY suggested to the Minister of Health, that the time was ripe for an inquiry into the whole hospital system of the country, so as to provide a coördinated plan.

MINISTERIAL REPLY

Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, said he wished an occasion would arise when the sterilisation of the unfit could be more freely ventilated. They wanted the guidance of public opinion. The policy of the Ministry of Health was that it was wrong for a maternity and child welfare centre, or a clinic for the treatment of sick persons, paid for out of public funds, to be used for giving contraceptive advice, except in cases where further pregnancy would be injurious to health. In reply to Sir F. Fremantle he said that the chief medical officer of the Ministry would have the status of a Secretary in the same degree as his predecessor, and the same right of direct access to the Minister. With regard to the points raised by Mr. West about infantile mortality in Kensington, he had in his hand a letter from the medical officer of health which showed how careful one ought to be in quoting statistics.

In one divison of Kensington—Holland Ward—there was an infantile mortality rate of 133 per thousand. That was very high, and was accounted for by the fact that there were 18 deaths. The letter from the medical officer showed conclusively that of these 18 deaths only 3 could have benefited by the maternity and child welfare services, and that, in fact, only 3 availed themselves of them. Of the 18 deaths, a considerable number were of children who had been adopted by institutions in Kensington; they came from outside. He had not the slightest doubt that much of the high rate in Kensington was due to bad housing conditions, but the housing problem was being tackled there as vigorously as in any other London borough.

Mr. Shakespeare challenged the suggestion of Dr. Addison that the Government had economised on the care for children and mothers during the last four years. In every circular that they had issued they had made it plain that although economy was necessary in 1931 the work of maternity and child welfare centres must be pressed forward. Dr. Addison had also asked that the Government should publish the report of the Economic Advisory Committee. This was a confidential report to the Cabinet. If published, the whole purpose of the Committee and the value of their reports would be lost. As a result of the last report the Government had enlarged the Advisory Committee on Nutrition set up a few years ago and turned it into a Standing Committee, under the chairmanship of Lord Luke, consisting of expert dieticians, statisticians, medical men and people with a great knowledge of public health and social conditions. The question of nutrition had hardly been touched. One would expect that with continued and prolonged unemployment there would be a slow deterioration of health, and the Ministry were always looking for that. Mr. Batey had raised the question of the report of the inquiry on Dr. Walker's statement about conditions in Durham. Dr. Walker was associated with that report, and if he asked the investigator to go anywhere he went, and this was what the report said:—

"While we have found in the area under review a considerable incidence of sub-normal nutrition and some incidence of malnutrition, our investigation shows little evidence of any increase of disease and none of increased mortality. The physical condition of the majority of individuals passed under review is good. Realising the long-continued economic stress to which this population has been subjected and with knowledge of the home conditions of many we have often been surprised at the high standard of health and courage which has been maintained."

The report did show that the condition of adolescents from 14 to 16 was far from satisfactory, and the Government took steps to rectify it. They instructed the local authorities to pay special attention to giving relief to families containing adolescents. When a person was malnourished very often it did not mean that more food would rectify it; more food might accentuate the digestive disturbance. What was wanted was advice and instruction so as to secure that the right food was taken and that it was properly cooked. Mr. Shakespeare quoted an experiment recently conducted in London. Dr. Simpson in 1934 examined the condition of children in some of the poorer areas in London. He took a sample of malnourished children and he found that 7 per cent. of a certain batch came from the homes of the unemployed and in another area, another school, he found that another 7 per cent. of malnourished children all came from homes where the means were substantial and the parents were employed. What was vital was that the Ministry should be constantly on its guard. Whenever they received reports from medical officers of health or any signs of malnutrition they immediately got into touch with local authorities. The machinery of public health in this country, both national and local, had so far proved adequate.

Work of Home Office: Factory Accidents and Industrial Diseases

ON July 16th, the House of Commons went into Committee of Supply on the Civil Estimates. CAPTAIN BOURNE was in the chair.

On a vote of £396,253 to complete the sum necessary for the salaries and expenses for the Home Office, SIR JOHN SIMON, Home Secretary, recalled that just 20 years ago he was Home Secretary. Since then there had been great extensions in the work of the Home Office, for example, in the control over dangerous drugs.

Referring to the annual report of the chief inspector of factories for 1934, he called attention to the excessive number of accidents among juveniles, though happily the fatality-rate was low throughout the whole of industry. The chief inspector pointed out that the true solution lay in voluntary efforts of employers and others, and in the better training and supervision of boys and girls in the early days of their employment. SIR JOHN had sent to the National Confederation of Employers' Organisations, inviting them to a conference with the department on this subject. The report of the chief inspector also illustrated the fact that since the war the work of the factory department had developed in several new directions.

Mr. RHYS DAVIES moved the reduction of the vote by £100. He asked the Home Secretary to investigate the problem of whipping boys by the order of the court; he hoped the department would continue to discourage the practice. The worst feature of the annual report referred to was the increase of reported accidents from 113,260 in 1933 to 136,858 in 1934, roughly an

increase of 5,600, fatal accidents having increased by nearly 100—i.e., from 688 to 785. The percentage increase of reported accidents was far higher than the percentage increase in the number of work people employed.

Industrial diseases also were for the most part increasing; 30 more new cases of lead poisoning occurred than during the previous year and six more deaths. Even in the painting of buildings there was an increase in lead poisoning, in spite of the passing of an Act of Parliament a few years ago, dealing with the use of white lead in paint. The most extraordinary anomaly of all was that while safety organisation in factories was growing there was almost a proportionate increase in industrial diseases and accidents. The only redeeming feature was the declining rate of silicosis in the pottery industry. There was also a serious increase in industrial disease among those employed in chromium plating and those handling pitch, tar, and oil; 423 persons had died from pitch and kindred cancers from 1920 to 1924.

Mr. PIKE asked if Mr. DAVIES would say what was the cause of the increase in the chromium plating figures?

Mr. DAVIES replied that medical men were, he believed, inquiring into this question. Cases due to fuels and gases were 179 in 1934, compared with 149 in 1933, with 21 deaths in 1934 against 14 in 1933. Negotiations had been proceeding for some time past between the Home Office and the employers in the Lancashire textile industry, regarding men who suffered from asthma and bronchitis consequent upon dust in card rooms. He believed that the Home Office had been doing its best. It was very difficult to schedule this disease for workmen's compensation. He welcomed the efforts to secure better lighting in factories. If the Home Office could not by ordinary pressure bring the factory owners up to standard in this connexion, he hoped that they would ask for Parliamentary powers to deal with them.

Referring to the circular issued to local authorities preparing the population for an attack from the air, he said he doubted if a circular so awful in its implications had ever been issued by a Government department in this country. Mr. DAVIES knew of no device which would effectively safeguard human life once aircraft began to drop bombs on a civil population. The clamour for gas masks following an issue of the circular would lead to the same problem of profiteering in gas masks as they had had in the manufacture of aircraft, unless the Government took immediate steps to prevent it.

Mr. PIKE said that Mr. DAVIES had failed to read the significant part of the report concerning lead poisoning. The sentence read: "The reduction in cases of lead poisoning in the past few years has not been maintained; there is an increase of 30 over last year's figures, mostly among pottery workers, as foreshadowed in the annual report of 1933." The chief inspector attributed this increase mainly to the increase in the building of houses and in some measure to an influx into the industry of untrained workers, under the supervision of persons not yet fully alive to the high standard of cleanliness required under the regulations to control the lead risk. It was stated in the report also that of the 26 cases in the pottery industry, 16 occurred in the manufacture of highly decorated tiles with leaded glaze, which carried less liability to silicosis but more to lead poisoning than did the manufacture of other tiles.

Similarly the report stated that the increase in the number of cases of chrome ulceration was attributable to the further extended use of the process of chromium plating.

Mr. TINKER said that the Home Secretary had power by regulation to include in the schedule of industrial diseases any disease which he thought should be brought into the schedule. Workmen's compensation had been built up by that method. Many members, especially those who represented industrial areas, had come across cases of Dupuytren's contraction, which seemed to be brought about by the thickening of the tissues in the centre of the hand, originated by excessive use of a spade or pick. One man who sent him a letter over 12 months ago now had hands in an advanced state of contraction, and in a month or two he would have to give up work. There was nothing in the Workmen's Compensation Act to protect him. His medical man told him that he was entitled to compensation because his condition had been brought about by his employment, and the man went to his trade union official. They looked up the schedule of diseases, but the term was not included in it, and the man could not get compensation. The Home Office declared that there was not sufficient evidence to warrant the inclusion of the disease. He hoped that the new Minister would not let the matter stop at that.

Another question was that of medical referees. When a man was regarded as recovering, the employer had to examine him, and if the man was well on the way to recovery he could serve him with ten days' notice. The man could get a medical opinion, which might be that he was not recovering. The matter was then referred to a medical referee. It passed through the register of the county court, and at the end of ten days came before a medical referee for examination. He had no fault to find with the method up to that point; his complaint was in regard to the length of time, sometimes one, two, or three months, that elapsed after the ten days before the man was examined by the medical referee. After such a long period much if not all of the damage might have passed away, and in that case the man would get nothing. That gave rise to difficulties in signing on at the Employment Exchange, because the man was not fit for work and could not claim unemployment benefit. When he was fit for work he received no compensation and no unemployment benefit.

Could not the Home Office lay it down that at the end of ten days the man should be paid his compensation until he went before the medical referee? That would certainly hurry matters up. Or could they not say that at the end of a reasonable time, say a fortnight, if the man had not then been before the medical referee, owing to the fault of the employer, compensation should be paid to him until he did go before the medical referee? If that could be done, these cases would come before the medical referee with extreme rapidity.

At present, there was only one medical referee, who alone had the power to decide a man's fate, and even though his condition might change from what it was when he came before the medical referee, the man had really no case in law. He could go before the county court judge, who could hold that there had been no change in his condition. The Miner's Federation took such a serious view of this matter that they had asked the Home Office whether, at least in extreme cases, there could not be more than one medical referee to decide on the condition of the man.

Sir ARNOLD WILSON drew attention to the increasing frequency of accidents in electrical lifts in large towns; he held that these should be notified. Hundreds of people—mostly boys—were killed or maimed in our cities every year by lift accidents. The lift was becoming more and more a part of our lives, and it was not safe to leave the matter any longer to chance and the coroner. The chief inspector of factories had referred to the bad lighting which was so common in factories. Instead of appointing more factory inspectors and devising fresh laws and regulations, the Home Secretary should induce the great firms in this country who supplied electrical equipment to spend a few thousand pounds on a special campaign of advertisement and education and instruction, particularly of small firms, into the numerous new ways of lighting which could be introduced, often at a great saving, even into the oldest factory. He endorsed Mr. TINKER's plea in regard to the subject of a medical referee sitting alone. Lead poisoning and chrome ulceration were largely due to the absence of adequate medical supervision on the spot at the right moment, as was stated by the chief

inspector of factories. The doctor was coming more and more into our lives and his position in such matters should be that of an assessor or witness, who should give his technical advice, and the final decision whether a man was or was not suffering from a given disease—a matter upon which his whole future depended—should be given by a judicial authority, a referee—someone learned in the law—who had to assist him, on the question of evidence, one or more medical men of high repute sitting as assessors, and not acting as judges. Dupuytren's contraction was an admittedly obscure disease and he could quite understand the difficulty of the Home Secretary's predecessor in reaching a decision that this was a proper disease to schedule, but he could see no reason why, with the Industrial Health Research Board at the disposal of the Home Office, every single reported case of that disease should not be specifically examined by a doctor appointed by the Board. If this disease was thoroughly examined a final decision could be reached within a year or so, and once reached could be given retrospective effect. We had mighty efficient scientific machinery, and he was by no means satisfied that we were making the best possible use of it.

Sir A. WILSON had not seen a copy of the air raid circular, but he felt confident that there was far less known about the probable effect of many of these terrible weapons than was popularly thought. He believed that the best remedy was attack, but that was obviously outside the Home Office vote. Meantime, he urged the Home Secretary in any public references not to increase the public fears.

Mr. LYONS pointed out that incidental risk was attached to various new kinds of work. For example, chromium plating was now so much used that manufacturers on a large scale no longer bought their chromium-plated material and put it on to their own article, but established their own chromium plating plants. That new type of work offered a new danger to employees. He welcomed the suggestion that proper medical inspection and constant medical guidance could prevent increased accidents. He suggested to the Home Office that any concern utilising a new type of invention, such as chromium plating, should be specifically asked not to wait for fortnightly or monthly inspections, but to make the period very much shorter, and to introduce medical supervision daily, if necessary. Finally, he asked the Home Secretary if the time was not now ripe for a real review of the schedule of industrial diseases.

Mr. FLEMING called attention to the provisions of the Drugs Act of 1920. The Department, he said, had been pressed from all quarters to tighten up the administration, and there had been a report from the Poisons Board with regard to the people who should be qualified and permitted to dispense drugs. While protecting the public as far as possible, the Home Office ought to take the greatest care to see that, if it acted upon that report, it did not cause undue unemployment. If the only people allowed to supervise the manufacture of poisons to be used medicinally in this country were members of the Institute of Chemistry, men and women more qualified than members of this institution would be debarred from doing the work which they were doing to-day.

Mr. CLEARY said that the Mersey Tunnel was 2½ miles long, and there was a widespread opinion that tunnels of such great length and holding capacity would provide safe refuges in an air raid. On the other hand, if poison gases heavier than air were used, these tunnels would become death traps. Referring to the Poisons Board, if members of the Institute of Chemistry alone were to have any voice or control in the manufacture of poisons this would exclude 60 per cent. of the chemical profession, including the members of the British Association of Chemists, and this would obviously be an injustice and a hardship.

Mr. JOHN emphasised the need of expanding the schedule of industrial diseases. The last 30 years had shown that from time to time new diseases were discovered, consequent upon changes in occupations, which were not scheduled under the Compensation Act. Experience had proved the need not only of expanding the schedule, but of revising some of the orders already in existence. Great progress had been made with respect to orders dealing with silicosis during the past 15 years, and last year's order was a material advance. It provided that a workman certified as suffering from silicosis was entitled to compensation, but there were two or three difficulties. One was that the order was not retrospective. Hundreds of men who had been certified as suffering from silicosis, could not establish their claims, merely because they were suffering from silicosis prior to the date mentioned in the order, namely, October, 1934. The order was confined to underground operations, and the large number of surface men certified as suffering from silicosis could not claim compensation. No matter when or where a man contracted the disease such certification ought to entitle him to compensation.

Then there was the question of aggravation and acceleration. If a man died following an accident, and the doctor certified that the accident had aggravated death, the widow and orphans were entitled to compensation; but if he died of heart failure or pneumonia, notwithstanding the fact that the doctor certified that silicosis had aggravated or accelerated death, the widow and orphans were not entitled to compensation. A disease similar to silicosis was anthracosis. It was getting very prevalent in the coalfields, and medical science through the College of Physicians was taking a keen interest in it. It had been found that a large number of men were suffering from anthracosis, which was contracted through the inhalation of coal dust. In years gone by, it was certified as bronchitis. He asked the Home Secretary to make investigations to ascertain to what extent this disease existed in the coalfields, and to see whether it was possible without much delay to make an order to enable a man suffering from anthracosis to be entitled to compensation. They had not much complaint against the policy adopted with respect to the medical examination of persons suffering from silicosis. There were three medical boards responsible for silicosis cases. The Home Secretary had been asked to consider extending the principle of medical boards to all cases of accidents. The medical referee had too much power; in fact, he was judge, jury, House of Lords and court of appeal in one. Was it not possible to extend the principle that applied to silicosis to all other accidents, so that the individual would have the satisfaction of being examined by a medical board It would mean the removal of a great deal of delay.

Then there was the question of prevention. The Home Office and the Mines department had been doing a great deal of good work in investigation and research into the prevention of accidents, but there was no coöperation or coördination between the two departments. The Mines department had been making investigations and research into the prevention of silicosis and a good deal of inquiry was made into the foam that had been invented to absorb the dust and into dust traps. An exhibition had been held at the Home Office the other day dealing with the prevention of accidents, but once an exhibition was held and inquiries and research had been conducted, nothing further was done. He would like to see more coöperation between the departments, and that when a particular means of prevention was approved, employers should be compelled to adopt it.

Captain EUAN WALLACE, Under Secretary, Home Office, replying to the debate, said, with regard to air raids, that responsibility of the central Government towards the civil population could not be ignored. This circular was only a preliminary, and would be followed up by conferences, and by the issue from the Air Raids Precautions Department of a series of technical handbooks. The congregation of people into places like the Mersey Tunnel, or the tube system of London, obviously held elements of

the very greatest danger. It might be impossible to-day to secure complete immunity from aerial attack, but mitigation of its effects was well within the bounds of possibility, and there was no reason for the citizens of this or any other community to sit down with folded arms and wait for an assault.

Reference had been made to what was regarded as the deficiency in the staff of the factory inspectorate, but the 254 inspectors which they had at the moment were 14 more than they had last year and 7 above the maximum number they had ever had. On the advice of the expert Departmental Committee there was not at present sufficient exidence to justify putting Dupuytren's contraction on the schedule of industrial diseases. In order to be put on the scheduled list, it must be a disease which was definitely shown to be due to occupation and to nothing else. They could not, for instance, put asthma or hay-fever on the schedule, because they arose from some other causes than that of employment, but the Home Office would keep this question, and all other medical questions of the kind, very closely under review. With regard to the questions about medical referees and delay in decisions, the announcement that they proposed to set up a departmental committee to examine that and several other cognate questions would give general satisfaction.

The increase of accidents, regrettable as it was, must definitely be ascribed to (1) the general expansion of trade; (2) the fact, that men were coming back into work after long periods of unemployment; and (3) the fact that a general industrial reorganisation was now proceeding in this country as a result of a very large number of new processes. The fact that a high proportion of the accidents occurred among juveniles appeared to him to indicate rather failure of the human factor than inadequacy of the material precaution.

The motion to reduce the vote was negatived by 121 votes to 40 and the debate was adjourned.

Criminal Lunatics (Scotland) Bill

In the House of Commons on July 19th, when this Bill was being considered on report, Mr. JAMIESON, Lord Advocate, moved an amendment to clause 4, the effect of which he said, taken along with the amendments inserted in Committee, would be that where a person serving a sentence was found to be insane, but his insanity was such that he was not suitable to be sent to an ordinary asylum, he would be sent to a criminal lunatic asylum and the opportunity would be given to have him examined by his own medical man. The doctor's report would be considered by the Secretary of State, who would review the whole circumstances and make such order as might be necessary on the expiring of the sentence; if the person was not yet fit to be set at liberty on account of his insanity, and not fit to be sent to an ordinary lunatic asylum, certification to that effect would be given by two medical practitioners, one of whom was not to be in the prison service. An opportunity would be given at that time for the person to be examined by his own doctor. Again the Secretary of State, on receiving the reports, would consider the whole of the circumstances before making an order. The Lord Advocate added, that he understood that with these amendments the Bill was noncontentious. The amendment was agreed to and the Bill was read the third time and passed.

Precautions Against Air Raids

In the House of Lords on July 23rd, Lord MORLEY raised the question of the Home Office circular recently issued with regard to precautions against air raids. He said that the gas masks which would be available were of psychological value only. The Government would have to take the question of gas masks much more seriously. They must consider adults, children, and animals. Every mask was quite useless against chlorine gases.

The Earl of FEVERSHAM (Lord-in-Waiting) said that the Government most strongly deprecated the statement that there was no defence against gas attack, and that therefore it was useless to do anything at all. He had been informed by expert advisers that it was perfectly feasible to provide protection against gas. In fact it was often easier to provide this protection than protection against high explosive bombs. The steps which the Government contemplated would go a great way to minimise the dangers of this form of attack. Stories of gas possessing qualities against which no respirators were a protection were without foundation. The Government were actively emgaged in designing a form of respirator which would supply adequate protection against gas for members of the general public. It was an essential requirement that the respirator should be available at a low cost. Such a respirator would provide adequate protection, in addition to such measures as people had been able to take to make some part of their houses gas-proof. In the recruitment of the humanitarian services, rescue work, first-aid treatment of casualties, and decontamination, the Government would be dependent to a large extent on the British Red Cross Society, the Order of St. John, and the St. Andrew's Ambulance Society, who had been good enough to say that so far as practicable they would place themselves at the disposal of both the central and the local authorities to supplement official resources. Respirators and protective clothing would be supplied to persons engaged in air raid services.

HOUSE OF COMMONS

WEDNESDAY, JULY 17TH

Hospitals and Electric Lighting Failures

Mr. BERNAYS asked the Minister of Transport whether, following on the recent failure of the system of electric supply in London, he would consider legislation making it compulsory for hospitals, theatres, and other public buildings to install an emergency automatic system.—Mr. HORE-BELISHA replied: I understand that the licensing authority ordinarily make it a condition of the licence that in places of public entertainment there shall be a system of dual lighting. I would not feel justified at this moment in interfering with the discretion of hospitals, who being aware of their own needs would naturally provide for them to the full extent of their economic resources.

Beddington Sewage Works

Mr. DORAN asked the Minister of Health if he was aware that similar insanitary conditions as experienced in 1934, emanating from the Beddington sewage works, were now recurring in the Mitcham, Beddington, and West Croydon areas, and during the recent hot weather it was impossible for the residents to frequent the commons in these respective districts owing to the prevalence of very offensive odours; and if, in view of the failure of the interim measures taken by the Croydon corporation, he would use every means in his power to put an end to this nuisance.—Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied: My right hon. friend has arranged for an inspector to visit these works to-day in order to examine the conditions.

Rules under Pharmacy and Poisons Act, 1933

Sir ERNEST GRAHAM-LITTLE asked the Home Secretary whether, in view of the hardship caused by the exclusion of university graduates in chemistry, unless they were or became members or associates of the Institute of Chemistry, from the list of persons authorised to undertake or supervise the manufacture of pharmaceutical preparations containing any poison used in the internal treatment of human ailments, he would instruct his department to add to the categories of persons so authorised (Report of the Poisons Board, Cmd. 4192, Appendix II.,

Rule 27) persons qualified by the possession of degrees testifying competency in chemistry, issued by accredited universities, without being required to seek membership of the Institute of Chemistry.—Sir JOHN SIMON replied: Notice of my intention to make rules under the Pharmacy and Poisons Act, 1933, including the rule to which the hon. Member refers, has been published in accordance with the Rules Publication Act, 1893, and I shall not be in a position to take any final decisions until after the expiration of the period during which the draft rules are open for representations to be made to me. The hon. Member may rest assured that all such representations will be most carefully considered.

THURSDAY, JULY 18TH

Free Milk and Meals for School-children

Captain SPENCER asked the President of the Board of Education what, if any, representations had been made to him as to the effect of Circular 1437, dealing with the discontinuance of free milk and meals to school-children in certain cases.—Mr. OLIVER STANLEY replied: Certain representations have been made to the Board in the matter. The Board have made it clear that, before free meals or milk are withdrawn, a sufficient period should be allowed to elapse for the child's health to become firmly established. The Board have also stated that they would regard it as reasonable to take into account the conditions under which the child is living, and to take special precautions where those conditions are such that deterioration is probable if the meals are discontinued.

Captain SPENCER: May we take it that the statement in a Manchester newspaper that children must be half starved before they receive such assistance is totally untrue?—Mr. STANLEY: My hon. friend will see from the answer that that statement is completely without foundation.

Mr. MORGAN JONES asked the President of the Board of Education whether his attention had been called to the instruction given by the Conference of the Association of Education Committees to its executive to go into the legal aspect of Circular 1437 in relation to the selection of children for free milk and meals; and whether, in view of the opposition of local education authorities to the circular and the resolution adopted by the Council of the British Medical Association that the onus should not be placed upon a medical officer of determining in every case that a scholar was presenting evidence of subnormal nutrition before free milk or meals are provided, he proposed to withdraw it.—Mr. OLIVER STANLEY replied: I am aware of the instruction in question; I am not, however, prepared to withdraw Circular 1437. I am satisfied that the system recommended by the Board provides the most effective means of securing that meals or milk are supplied to children who need them in order that they may obtain full advantage from their education, and that under any other system many such children may be overlooked. While the system recommended by the Board is opposed by some local education authorities, there are many authorities who select children on the basis outlined in the circular.

Dr. ADDISON: Has the right hon. gentleman availed himself of the advice given by a number of experts a year ago as to the necessity of these children receiving milk?

No reply was given.

Aged Recipients and Public Assistance

Sir JOHN POWER asked the Minister of Health if he could furnish an estimate of the extent to which the increase in the population of persons in receipt of public assistance in the last 25 years arose from the greater longevity of the population.—Sir KINGSLEY WOOD replied: The number of persons who are over 65 years of age and are in receipt of relief is considerably smaller now than it was in 1906, owing to the introduction of old age pensions. The greater longevity of the population has, no doubt, had the effect of preventing a larger reduction, but I regret that I have no means of estimating that effect statistically.

MONDAY, JULY 22ND

Retained Foreign Body and a Pension

Mr. WHITESIDE asked the Minister of Pensions whether he was aware that Mr. Henry Fisher, of 9, Brompton-row, Dewsbury-road, Leeds, was originally granted a pension of 24*s*. a week, but that this was reduced to 8*s*. a week in 1922; that he was totally unable to work, and that, in the view of the highest medical authority at Leeds Infirmary, his disability was due to a piece of shrapnel lodged in his chest; and would he consider, therefore, increasing Mr. Fisher's pension.—Mr. R. S. HUDSON replied: In view of the strong opinion expressed by the surgeon at Leeds Infirmary, the whole case, including opinions in favour of the claim, was submitted to an eminent independent specialist nominated by the President of the Royal College of Physicians, who confirmed the view of my department that on the available evidence it could not be said that Mr. Fisher's condition was due to the presence of a retained foreign body. In the circumstances I much regret that I cannot see my way to adopt the course suggested.

Future of Wyton Sanatorium

Mr. THORNE asked the Minister of Health if he had yet replied to the Huntingdonshire county council's request for permission to sell Wyton sanatorium for consumptive children and adjacent lands, comprising nearly 200 acres to the Air Ministry; and where it was proposed that the children in question were to be sent and the price paid for the lands and buildings by the Air Ministry.—Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied: My right hon. friend understands that the county council are considering whether, in view of the reduced demand for beds for children, this sanatorium is still needed for its present purpose, but they have not yet submitted any proposals to him.

Salaries of Medical Officers of Scottish Board of Control

Mr. GUY asked the Secretary of State for Scotland whether the salaries of the medical officers employed in the General Board of Control for Scotland were fixed irrespective of sex.—Sir G. COLLINS replied: The answer is in the affirmative, with the qualification that the present woman deputy commissioner retains a personal salary until her appointment as commissioner takes effect in October next.

VICTORIA HOSPITAL, SWINDON.—It is hoped to launch a private ward league here to extend the operation of the contributory scheme to higher paid workers.

ALL-INDIA OPHTHALMOLOGICAL SOCIETY.—At its fourth conference, held at Madras in April, this society submitted a series of resolutions to the notice of the authorities concerned in British India and the Indian States. These asked that steps should be taken to ensure that practitioners, midwives and others concerned in the conduct of childbirth should possess a practical knowledge of the prophylaxis of ophthalmia neonatorum; that medical officers employed on nutritional research should report on conjunctival xerosis or keratomalacia as seen in hospitals, and make practical suggestions as to how the food defects responsible may be met; that the Government of India should institute an enquiry into the disturbing information given by the International Association for the Prevention of Blindness about the high incidence of trachoma in Indian regiments; that legislation regarding the inspection of the eyes of school-children be introduced at a very early date throughout British India and the States; that the machinery for the prevention of small-pox should be tightened up; that propaganda should be undertaken for the instruction of the uneducated concerning the prevention of blindness; and that medical departments for the treatment of the venereal diseases should be instituted, strengthened or extended, such being modelled, so far as possible, on those in existence in Great Britain.

OBITUARY

HELEN CHAMBERS, C.B.E., M.D. Lond.

Dr. Helen Chambers, whose enterprise and energy led to the foundation of the Marie Curie Hospital, died in Devonshire on July 21st after a long illness. Born in India, the only daughter of Frederick Chambers, I.C.S., Helen Chambers was educated privately in Guernsey and London and at Newnham. She entered the London (R.F.H.) School of Medicine for Women in 1898, and after a distinguished career as a student qualified in 1903 with a gold medal in forensic medicine and first class honours in obstetrics. She took the B.S., in 1904, and was at once made assistant pathologist and clinical pathologist to the Royal Free Hospital; Dr. A. G. Phear, one of the assistant physicians, being at that time pathologist to the hospital. Dr. Chambers's post was not a full time one and during the next few years she also held various research scholarships, notably the Mabel Webb research scholarship, and a newly founded scholarship in the cancer research department of the Middlesex Hospital, being one of the first of these scholars. Dr. Chambers took the M.D. in pathology in 1908, and in 1914 resigned from her post at the Royal Free Hospital to join the staff of the Military Hospital in Endell-street, which was staffed entirely by medical women, as pathologist. She worked there throughout the war and in 1920 received the C.B.E. in the first batch of those decorated with the Order of the British Empire. After the war Dr. Chambers became a full-time worker for the Medical Research Council at the Middlesex Hospital and the Marie Curie Hospital.

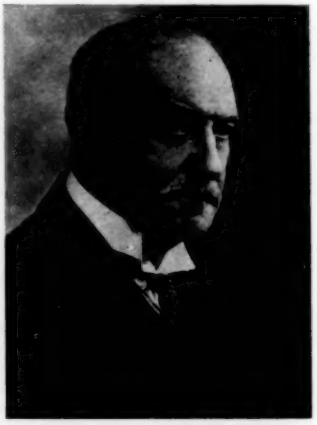
Her first publications were concerned with the thyroid gland, but as early as 1911 she began, in collaboration with Prof. S. Russ, the series of papers on different aspects of the biological effects of radium, for which she is chiefly known. Dr. Chambers became enthusiastic about the possibilities of radium therapy, especially for cancer of the cervix, and at a meeting of the London Association of the Medical Women's Federation in the spring of 1924 she induced the Association to appoint a committee to organise and carry out clinical research on this subject. A scheme was submitted to the Medical Research Council, and, with the coöperation of the British Empire Cancer Campaign, enough radium was received on loan to make a start and enough money to appoint a medical research officer as coördinating director. For three years the work was carried out at the three hospitals staffed by medical women in London and at the New Sussex Hospital for Women at Brighton, but the inconvenience of this plan became manifest, and in 1928 the radium research was concentrated at the Marie Curie Hospital at Fitzjohn-avenue with outstanding success.

Dr. Chambers never allowed her name to be personally associated with this or any other achievement—the only thing she cared about was that a "bit of work," to use her own phrase, should be done. Her anxiety was to persuade clinicians working with radium at the hospital to adopt the technique decided on, after extensive inquiry at home and abroad, without variation, so that the value of the method could be determined. This unification of treatment was made possible by the appointment of a medical research officer of experience and the success of the Marie Curie hospital in accumulating valuable records is due largely to the loyalty of the team to the ideals of the original research committee. Dr. Chambers had a rare combination of mental qualities, vision, zeal for controlled scientific research, and desire for social service. The outstanding features of her character were truth and loyalty. She was modest and retiring in disposition, but was always ready to come out of her shell of reserve to help those in physical or mental trouble. Her hobby was gardening, at which she was expert. She lived out of London, but attended regularly discussions at meetings of medical societies when subjects in which she was interested were under discussion; the loss of her critical judgment will be felt by all those concerned with the clinical applications of radium and X rays.

CHARLES GRAHAM GRANT, L.R.C.P., L.R.C.S. Edin., V.D.

THE death occurred on July 17th, of Dr. Graham Grant, doctor and barrister, who occupied until the beginning of the year the position of first clerk of arraigns at the Central Criminal Court, London.

Charles Graham Grant was the son of Mr. Dundas Grant, an Edinburgh advocate. He was born in 1864, received his professional education in the medical school of the University of Edinburgh, and qualified as L.R.C.S., L.R.C.P. Edin. in 1885. His varied medical work was all done in London, where he held at different times the posts of surgeon to the Poplar Hospital and medical officer to the Rotherhithe Tunnel works. He was also on the staff of the Tower Hamlets Dispensary and was medical officer to the Eastern District of the Post Office. He was surgeon to the H Division of the Metropolitan Police and for a period worked as clinical assistant at the Central London Throat and Ear Hospital. At different times also he served as surgeon on the following steamships: *City of Manchester*, *City of Oxford*, and *Anchises*. For a time he held a commission in the 24th Middlesex R.V., obtained the volunteer decoration, and at the time of the war was lieutenant-colonel, R.A.M.C. (T.F.). Much interested in medico-legal questions arising out of his work as police surgeon he wrote a manual on forensic medicine, and a small book, the "Diary of a Police Surgeon," which recorded his experiences in that capacity in an amusing and picturesque manner. In 1910, when he had been in practice for 25 years as a doctor, he was called to the Bar by Gray's Inn and was appointed Clerk of Arraigns in the Central Criminal Court, a position which he held for the next 25 years.



[*Photograph by Lafayette*

DR. GRANT

That is the bare outline of a life of great interest. Endowed with physical vigour, courage and strength of mind, Grant was able to perform the duties in his manifold fields of work with conscientiousness, undeterred by opposition or undue fear of offending.

Without aiming at high academical distinctions he maintained a solid standard of technical efficiency, directed by sound judgment and unruffled presence of mind. These qualities stood him in good stead as surgeon to the two large police areas where he was called at all hours to deal with cases of varying gravity. This long and observant experience inspired his book, entitled in its first edition "The Police Surgeon's Emergency Guide," a vade mecum that has been of service to many of his colleagues. His capacity for dealing with large bodies of men was displayed in his activities as surgeon to huge Post Office districts and medical officer to the Post Office Rifles in time of peace, as also to several large military camps during the war. When recommended for appointment to the post of Clerk of the Arraigns at the Old Bailey, the high official in whose hands the appointment lay stated that "he wanted as a coadjutor a man who when he said he had done a thing had certainly done it." In Grant he found his man. His devotion to the late Common Sergeant, Sir Henry Dickens, was most touching. It is no secret that during the later years of Sir Henry's life his work as judge was rendered difficult by an increasing dulness of hearing and that it would have been scarcely possible for him to have continued dispensing justice, for which he was so adapted (and did so acceptably) had it not been for the imperturbable support given by the younger man in interpreting evidence and statements which were often difficult to hear. For Graham Grant this work for his aged friend and principal superior was truly a labour of love.

Graham Grant had a highly attractive personality In his strenuous life he derived great enjoyment from the possession of many friends, and if they contributed to his happiness he in turn enhanced theirs. His high spirits made him a much-desired companion, and he will be greatly missed by many far beyond his family circle as well as by those to whom he was near and dear. His witticisms, his friendly repartees, his stories, Scotch as well as others, his songs, quaint and tuneful, his good-natured banter and his readiness to laugh over his own mishaps rather than over those of others, his ability and equanimity in games of skill will be recognised as among his social characteristics by those who had the pleasure of knowing him. He was a beloved and respected member of the Savage Club, who in large numbers testified to their respect for his memory by attending the funeral ceremony at Golders Green.

Dr. Graham Grant married Miss Jane Campbell Greig, of Perth, and leaves an only daughter, with three grandchildren, and though much sought after for social functions he had always strong domestic feelings. He occupied much of his spare time in household carpentering, at which he was an adept, and greatly enjoyed playing the piano for his young grandchildren to dance to.

JESSIE HANDYSIDE GELLATLY, M.D.
D.P.H. Edin.

THE death has occurred of Dr. Jessie Gellatly widely known for her official work in the county of Cambridge. She was born in 1884, the daughter of Mr. Stewart Gellatly, educated at the Medical College for Women, Edinburgh, and graduated M.B., Ch.B., at the university in 1906. She proceeded to the M.D. degree in 1910, and in the same year obtained the D.P.H. She was for a time house physician at the Leith Hospital, and filled the same post at the Hull Children's Hospital, after which she became resident medical officer at the Walthamstow Sanatorium, and later assistant medical officer to Messrs. Cadbury Bros. During the war she worked with the R.A.M.C. at Malta, Salonika, and in Serbia. At the conclusion of hostilities she was appointed assistant medical officer to the county of Cambridge, a post which she held for nearly 20 years and was holding at the time of her death. Here she proved an indefatigable worker. Her days were occupied with the inspection of schools, 130 in all, but she also gave in the evenings courses of lectures on school hygiene at the Homerton Teachers' Training College, Cambridge. An example of the way in which Dr. Gellatly interpreted her duties will be found in an article which she wrote in these columns (THE LANCET, Feb. 11th, 1933, p. 342) on milk consumption in rural households. Her experience of school medical inspection in her East Anglian area had shown her that the majority of children did not get milk as a beverage, tea of varying strength being commonly drunk from weaning, often a protracted period. In order to obtain evidence of the milk actually used in a number of households, Dr. Gellatly questioned 150 mothers attending school medical inspections, and set out in detail, with appropriate tables, figures showing that in the majority of the families the supply of milk was inadequate, while there was no compensating supply of other animal fats of good quality. The evidence supplied by Dr. Gellatly's investigation agreed with the recommendations to be found in the report of the Milk Commission; it was an excellent piece of work.

Miss M. M. Allan, principal of the Homerton Teachers' Training College, writes: "Dr. Gellatly's experience made her contribution to the training of young teachers extraordinarily valuable, for her daily contact with the problem of the maintenance of the health of school-children lent reality to her precepts. It was in this daily work in the schools that she made her most valuable contribution and formed some of her most lasting friendships. The school teachers in remote country districts found in her not only a wise consellor but a friend interested in their personal lives, and in their homes as well as their schools she received a warm welcome. Her work was difficult and of necessity lonely, demanding hard driving to remote districts in all weathers, but it was always her absorbing life interest and she carried it out with great independence of thought and wonderful courage. Her friends to whom her early death will prove an irreparable loss, are hoping to endow a child's cot at the local hospital in her memory."

MEDICAL OFFICERS IN INDUSTRY OVERSEAS.—A meeting was held at the Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, on July 9th, to discuss the advisability of holding an annual conference to enable medical officers in industry overseas when on leave to meet together and review their various problems. Prof. W. W. Jameson, dean of the school, was in the chair. Medical officers present decided unanimously to accept the hospitality of the Ross Institute as their headquarters when on leave and to meet there for the discussion of professional matters. It was agreed that at first a conference lasting one day should be held in the beginning of July each year, invitations being issued through the medium of the British Medical Association and the various industrial associations. Any Government health officers home on leave from overseas would be invited to attend, and free discussion encouraged on any subject put forward by the medical officers present.

MEDICAL NEWS

University of Oxford

On July 20th the following degrees were conferred :—

D.M.—J. F. Brock, J. H. Hunt, C. W. Flemming, and C. R. Lane.

B.M.—J. R. Hollick, C. Hollins, N. Leitch, A. P. Meiklejohn, W. E. Henley, D. H. Hertz, W. R. Trotter, J. W. A. Turner, R. Bevan, E. M. Buzzard, C. F. Hamilton-Turner, P. C. Alexander, P. G. Burgess, H. Burton, W. J. C. Anstie, M. C. Chapman, J. C. Penton, D. F. G. Moir, and K. B. Dawson.

University of Cambridge

At recent examinations the following candidates were successful :

D.M.R.E.

Part I.—D. P. Bali, Alfred Pollitt, and I. G. Williams.

Part II.—D. P. Bali, J. L. Dobbie, T. P. Eustace, Leonard Freeman, A. H. Gibson, David Glass, P. R. Goodfellow, T. A. Green, B. T. Hooper, W. G. S. Hopkirk, A. S. Johnstone, Z. J. Joseph, A. H. Jowell, D. R. McPherson, Sambhunath Mukerjee, H. S. Rassim, and Beatrice M. Willmott.

University of Edinburgh

On July 17th the hon. degree of doctor of laws was conferred on Alfred Newton Richards, professor of pharmacology in the University of Pennsylvania. The following degrees and diplomas were also conferred :—

M.D.—A. A. F. Brown, J. A. Burgess, J. A. *Douglas, G. A. H. Gumley, T. B. Harvey, R. L. Langley, R. P. A. Macaulay, D. T. M'Donald, A. A. Miller, and A. A. Robertson.

* Commended for thesis.

Ph.D.—Heinz Schild and Hem Kanti Sinha (in absentia).

M.B., Ch.B.—H. M. Adam, J. D. Allan, John Allison, G. F. Anderson, K. C. Balfour, P. M. Barclay, Betty B. Barnetson, A. F. M. †Barron, Monoranjan Bhattacharjee, D. B. Black, J. B. Borthwick, Isaac Bortz, W. R. Brewer, A. K. Brooke, Stewart Brown, T. H. †Brown, R. T. Campbell, J. E. S. Carmichael, W. I. Chalmers, W. A. Coe, C. H. Comrie, W. R. M'K. Couper, J. M. Crawford, W. T. Cumming, H. A. Deverell, H. L. de Waal, J. M. Dick, Charles Donald, John Duncan, Jacobus du Toit-le Roux, Hermione K. S. Egerton, J. N. I. Emblin, M. R. †Ewing, Sigmund Falk, J. A. Farfor, Jean A. Forbes, J. W. Forbes, I. T. †Fraser, Henry Friedman, A. G. Gathorne-Hardy, Mary D. Gibson, James Gillan, I. C. Gilliland, J. C. R. †Greig, R. S. Hardie, J. P. Harger, M. S. Harvey, N. S. Hepburn, Thomas Hepburn, D. S. Hiddleston, Matthew Hunter, R. M. M. Hunter, J. J. M. Jacobs, John Jamieson, W. H. Kinstrie, T. A. Knowling, J. C. Lees, William Limont, M. G. Low, D. A. †Lowe, Abraham Lutton, Sydney Lyons, Allan M'Diarmid, V. P. M'Donagh, A. M. MacDonald, Norman Macdonald, A. M. M'Farlan, T. C. MacInnes, A. C. Mackenzie, A. M. Mackenzie, John MacKenzie, E. W. Macmillan, M. C. Macqueen, M. S. H. Makarim, O. A. S. Marais, E. G. L. Mark, W. H. C. Masters, J. S. Maxwell, F. O. Mell, Margaret MacK. Methven, G. R. Millar, Benjamin Miller, R. A. Miller, Robert Morrison I. A. Murray, Mustafa Niazi, J. C. Nicholason, A. A. Orr, H. G. Page, Jack Park, Andrew Paterson, J. T. Paterson, H. O. Paton, J. H. Patterson, M. C. Pinkinsky, A. I. Pirie, J. E. Place, H. J. Pratap, A. G. Proverbs, J. F. †Riley, A. J. A. Robertson, K. V. A. Rodgers, J. M'G. Rogan, Leah Rosenbloom, J. B. Ross, C. S. Russell, Daniel Ryness, John Scott, William Serle, William Simpson, Joan J. V. Spurway, Harry Stalker, C. P. Stevens, David Stevenson, N. F. Stocks, E. W. Stout, A. W. B. Strahan, Marian E. Sturrock, E. C. S. Talbot, A. N. Taylor, Alta F. Thompson, J. W. Thompson, C. H. Thomson, E. L. Thomson, G. M. Thomson, John Tillman, C. H. Tomlinson, G. F. Valentine, Wilhelmina J. Wagenmaker, R. M. Warren, J. D. Watt, A. B. Weir, Frances M. H. Wilkinson, N. V. Williams, C. M. Wilson, J. F. Wilson, J. L. Wilson, W. M'I. †Wilson, K. M. Wood, David Wyllie, and P. B. Zollott.

† With honours.

D.P.H.—J. F. Caithness, G. W. Gale (in absentia), D. R. Huggins, D. J. Morrison, H. P. Tait, C. A. Green, Elspeth M. Warwick, and Henry Waters.

D.T.M. & H.—Charles Bowesman, A. B. Guild, and Alexander Scott.

Diploma in Psychiatry.—I. S. Campbell (in absentia), M. A. Nasr, and C. M. Ross.

Diploma in Radiology.—J. A. C. Fleming, J. P. M'Gibbon, A. G. G. Melville, and R. E. Verney.

The following awards of prizes were made :—

Cameron prize in practical therapeutics to Julius Wagner-Jauregg, M.D., emeritus professor of psychiatry and neuropathology in the University of Vienna, in recognition of his discoveries regarding the malarial treatment of general paralysis ; Ettles scholarship and Leslie gold medal to M. R. Ewing M.B. ; Scottish Association for Medical Education of Women prize, to Frances M. H. Wilkinson, M.B. ; Murchison memorial scholarship in clinical medicine, W. M'I. Wilson, M.B. ; Mouat scholarship in the practice of physic, M. R. Ewing, M.B. ; Buchanan scholarship in midwifery and gynæcology, I. T. Fraser, M.B. ; James Scott scholarship in midwifery and gynæcology, T. H. Brown, M.B. ; Beaney prize in anatomy and surgery, T. H. Brown, M.B., and I. T. Fraser, M.B. ; Conan Doyle prize, J. N. I. Emblin, M.B. ; Annandale gold medal in clinical surgery, William Simpson, M.B. ; Royal Victoria Hospital tuberculosis trust gold medal, D. A. Lowe, M.B. ; Murdoch Brown silver medal in clinical medicine, A. F. M. Barron, M.B. ; Dorothy Gilfillan memorial prize, Margaret M'K. Methven, M.B. ; Wightman prize in clinical medicine, T. H. Brown, M.B. ; Pattison prize in clinical surgery, Alta F. Thompson, M.B. ; Sir Robert Jones prize in orthopædic surgery, Alta F. Thompson, M.B. ; Syme surgical fellowship, J. J. M. Brown, M.B. ; Freeland Barbour fellowship, N. G. Steere, M.B. ; M'Cosh bursary, F. J. C. Herrald, M.B. ; Gunning Victoria jubilee prize in public health, C. A. Green, M.B. ; Gunning Victoria jubilee prize in medicine, I. M'Kenzie, M.B., and C. E. Van Rooyen, M.D.

An address was delivered to the new graduates by Prof. R. W. Johnstone, the promotor. See p. 215.

University of London

Mr. H. R. B. Fenn, lecturer in dental mechanics and prosthetics in the University of Liverpool, has been appointed as first holder of the chair of dental prosthetics at Guy's Hospital medical school ; Mr. James Whillis, F.R.C.S., lecturer in anatomy at the College of Medicine, Newcastle-on-Tyne, to the university readership in anatomy at the same school ; and Mr. E. P. Stibbe, senior demonstrator of anatomy at the London Hospital Medical College, to the university readership in anatomy at King's College.

Society of Apothecaries of London

At recent examinations the following candidates were successful :—

Surgery.—G. B. Barbour, Univ. of Camb. and Guy's Hosp. ; A. H. El S. El Mahallawy, Roy. Coll., Edin. ; A. Morgan, Univ. of Manch. ; A. Ponder, Univ. of Camb. and Guy's Hosp. ; and K. G. Wrigley, Univ. of Sheff.

Medicine.—G. B. Barbour, Univ. of Camb. and Guy's Hosp. ; H. N. Davis, Univ. of Oxf. and St. Bart.'s Hosp. ; E. M. Frankel, Westminster Hosp. ; E. T. Garthwaite, St. Bart.'s Hosp. ; N. O. Lucas, Univ. of Oxf. and Guy's Hosp. ; J. B. Mair, Univ. of Glasg. ; K. P. Pauli, Univ. of Brist. ; and G. N. Rodgers, Bombay and West London Hosp.

Forensic Medicine.—G. B. Barbour, Univ. of Camb. and Guy's Hosp. ; H. N. Davis, Univ. of Oxf. and St. Bart.'s Hosp. ; E. M. Frankel, Westminster Hosp. ; J. B. Mair, Univ. of Glasg. ; and G. N. Rodgers, Bombay and West London Hosp.

Midwifery.—A. Aspinall, Univ. of Manch. ; A. N. Coondoo, Univ. of Durham ; G. R. Hopper, Univ. of Liverp. ; and F. W. Treadwell, Univ. of Birm.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery :—

A. Aspinall, E. T. Garthwaite, A. H. El S. El Mahallawy, J. B. Mair, K. P. Pauli, A. Ponder, F. W. Treadwell, and K. G. Wrigley.

Royal College of Physicians of London

The College will be closed from Thursday, August 1st to Saturday, Sept. 14th.

Royal College of Physicians of Edinburgh

A quarterly meeting of the College was held on July 16th, with Dr. Edwin Bramwell, the president, in the chair. Dr. Sorab Kaikhoshru Engineer (Bombay) and Dr. Alexander Hay Rintoul (Crieff) were introduced and took their seats as fellows. Dr. Joseph Bryant (Khartoum), Dr. Hanna Barsoum (Alexandria, Egypt), Dr. Ratan Kumar Misra (Delhi, India) and Dr. Pritan Varialsing Karamchandani (Waziristan, India) were elected to the fellowship.

Royal College of Surgeons of Edinburgh

At a recent meeting of the College, with Dr. A. H. H. Sinclair, the president, in the chair, the following, who passed the requisite examinations, were admitted to fellowship :—

Sushil Kumar Nag Chowdhury, M.B. Calcutta ; Eyjolfur Jonsson, M.D. Manitoba ; Patrick Clarence Anderson, M.B. N.Z. ; Bernard Albert Armitage, L.R.C.P. Edin. ; Hamilton Bell, M.B. Belf. ; Andrew Anderson Bonar, M.B. Glasg. ; Hugh Benjamin Boucher, M.R.C.S. Eng. ; John Austen Percival Cameron, M.B. Edin. ; Eric Alan Davison, M.D. Belf. ; Wallace Milne Dennison, M.B. Glasg. ; Krishna Chintaman Gharpure, M.B. Bombay ; James Porter Heron, M.B. Edin. ; Benjamin Holden, M.Chir. Camb. ; John Muil Melvin, M.D. Glasg. ; James Stuart McGregor, M.D. Ontario ; Daniel John Percy Parker, M.B. Belf. ; Edgar Rowan Rankin, M.B. Witwatersrand ; and David Swartz, M.D. Manitoba.

Edinburgh Royal Infirmary

Lieut.-Colonel A. D. Stewart, C.I.E., I.M.S., has been appointed medical superintendent of the Royal Infirmary, Edinburgh, in succession to the late Colonel Thom. Colonel Stewart, who is 52 years of age and an Edinburgh graduate, is at present director of the All-India Institute of Hygiene and Public Health in Calcutta. He is likely to take up his new duties in the autumn.

A Deputation on Maternal Mortality

Last Tuesday Sir Kingsley Wood, the Minister of Health, received a deputation from the Standing Joint Committee of Industrial Women's Organisations. Dr. Esther Rickards said that no local authority was at present using to the full its powers to provide maternity services; and urged that the Ministry should compel them to provide satisfactory services. She referred to the standard of work of medical practitioners employed by local authorities, and suggested that the terms of service should be made more attractive and that only doctors with special obstetrical experience be employed. She also advocated the provision of a municipal service of midwifery. Alderman Rose Davies gave an account of the good results following the work of the Birthday Trust in the Rhondda, and asked for special financial assistance for distressed areas. Mrs. E. Barton stressed the importance of a proper provision of home-helps. She also took the view that a maternity patient should not be moved for at least 24 hours after her confinement, and that where a confinement took place in hospital she should not be sent home for fifteen days. Miss Mary Sutherland spoke of the need for postnatal clinics and for an inquiry into maternal morbidity, with particular reference to nutrition, and asked that local authorities should be urged to use more extensively their power to supply milk and meals. She also advocated legislation to secure the elimination of the untrained handywoman. Mrs. Ayrton Gould said that pregnancy commonly meant the loss of employment, and a woman who lost employment in this way was often unable to obtain either unemployment insurance benefit, or health insurance benefit. She hoped the Government would ratify the Washington Maternity Convention which would prevent the employment of women six weeks before and after confinement.

In his reply, Sir Kingsley Wood said that, comparing 1931 with 1934, there had been a steady increase in the provision of maternity services by local authorities; the number of antenatal clinics had increased by nearly 20 per cent., the number of women attending them by 23 per cent.—attendances reached nearly a million last year—the number of maternity beds by over 10 per cent., and the number of women admitted to them by 30 per cent. In addition the quality of maternity accommodation controlled by local authorities had been improved and most municipal hospitals aimed at retaining a patient for fourteen days after delivery. The majority of maternity and child welfare authorities now provided obstetric consultants, some 400 local authorities provided food or milk free or at cost price, and 133 provided home-helps. Action to stimulate the authorities of the areas where development was needed would be continued, but persuasion would as a rule do more than compulsion. The Ministry had been constantly pressing the need of improving and effecting services wherever necessary, and there never had been any question of their curtailment on financial grounds, even at the height of the financial crisis. On the contrary, special reference had been made to the need of their development, a point which was again emphasised last year when it was decided to institute special investigations into areas with persistently high rates of maternal mortality. Through the coöperation of doctors and midwives with the officers of the Ministry of Health information about fully three-quarters of the maternal deaths each year was obtained and forwarded to the Ministry. When the results of the present intensive investigation into maternal mortality had been received, it would be possible to decide the next steps to be taken in connexion with maternal morbidity. While there was no foundation at present for any definite statement on the relationship of nutrition to maternal mortality or morbidity special attention was being paid to this aspect of the problem. Proposals for an organised service of salaried midwives were receiving careful attention.

London (R.F.H.) School of Medicine for Women

The A. M. Bird post-graduate scholarship in pathology has been awarded to Dr. Margaret A. Jennings, and the Mabel Webb and A. M. Bird research scholarship to Dr. F. Charlotte Naish.

Princess Elizabeth of York Hospital

This institution at Shadwell, formerly known as the East London Hospital for Children and now called the Princess Elizabeth of York Hospital for Children, is being rebuilt at Banstead. The grounds were opened on July 22nd for subscribers to visit the site for the new hospital. An out-patient department will be run in the East End in conjunction with a hospital and convalescent home in the country.

Appointments

BEGG, N. D., M.D. Aberd., D.P.H., has been appointed Medical Superintendent of Infectious Diseases Hospital, Southend-on-Sea.

CUTLER, ROBERT, M.R.C.S. Eng., L.D.S., Hon. Dental Surgeon to Cheyne Hospital for Children, Chelsea.

DODDS, R. L., M.Ch. Belf., F.R.C.S. Eng., M.C.O.G., Hon. Out-patient Surgeon to the Samaritan Free Hospital for Women, London.

HUDSON, T. G. F., M.B., M.R.C.P. Lond., Resident Medical Officer of the General Infirmary, Salisbury.

HOLMES, J. M., M.B. Leeds, M.R.C.P. Lond., Hon. Physician to the Staffordshire General Infirmary.

PINCKNEY, C. P., M.B. Camb., M.R.C.P. Lond., Temporary Assistant Physician to St. George's Hospital.

REES, T. P., M.D., M.R.C.P. Lond., D.P.M., Medical Officer at the Croydon Mental Hospital.

SCOTT, J. A., M.D. Liverp., D.P.H., Medical Officer of Health for Fulham.

SCOTT, T. F. MCNAIR, M.R.C.P. Lond., Assistant Physician to St. George's Hospital.

SUGGIT, S. C., M.B. Lond., F.R.C.S., Hon. Assistant, Ear, Nose, and Throat Surgeon to the Children's Hospital, Hampstead.

WOOD, G. N., M.B. Camb., Hon. Assistant Physician to the Royal East Sussex Hospital, Hastings.

Certifying Surgeons under the Factory and Workshop Acts: Dr. N. J. BEE (Wainfleet, Lincoln); Dr. R. L. Walker (Lowestoft, Suffolk); Dr. J. W. BROMLEY (Bury St. Edmunds, Suffolk); Dr. A. L. WILLIAMS (Melbourne, Leicester); Dr. J. MATHESON (Rickmansworth, Hertford); Dr. W. P. GRACIE (Furnace, Argyll).

Vacancies

For further information refer to the advertisement columns

Accrington, Victoria Hospital.—H.S. £150.
Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Bedford County Hospital.—Second H.S. At rate of £150.
Benenden, Kent, National Sanatorium.—H.P. At rate of £75.
Birmingham and Midland Eye Hospital.—H.S. At rate of £130.
Bolton Royal Infirmary.—H.S. £125.
Bradford Royal Infirmary.—H.S. At rate of £135.
Cambridgeshire County Council.—Asst. County M.O. £500.
Canterbury, Kent and Canterbury Hospital.—2 H.S.'s. Each at rate of £125.
Cardiff, Prince of Wales' Orthopædic Hospital.—Jun. H.S. At rate of £100.
Carlisle, Cumberland Infirmary.—H.P. Also Second H.S. Each at rate of £155.
Chester Royal Infirmary.—H.P. and two H.S.'s. Each £150.
Chichester, Royal West Sussex Hospital.—Sen. H.S. £175.
Chorley & District Hospital, Lancs.—H.S. At rate of £150.
Colchester, Essex County Hospital.—H.P. £150.
Derbyshire County Council.—Locum Asst. Maternity and Child Welfare M.O. At rate of £600.
Doncaster Royal Infirmary.—H.S. to Eye and Ear, Nose, and Throat Depts. £175.
Eastbourne, Princess Alice Hospital.—Res. H.S. £150.
East Ham Memorial Hospital, Shrewsbury Road, E.—H.P. At rate of £150.
Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.
Gloucestershire Royal Infirmary &c.—H.S. At rate of £150.
Gravesend & North Kent Hospital.—Jun. H.S. At rate of £125.
Harrogate Royal Bath Hospital.—Res. M.O. £156.
Herefordshire C.C.—Asst. County M.O. and M.O.H. £750.
Hertford County Hospital.—H.P. At rate of £150.
Ilkley, Middleton-in-Wharfedale Sanatorium.—Sen. Asst. M.O. £450.
Institute of Medical Psychology, Malet Place, W.C.—Pædiatrecian.
Jersey General Hospital and Poor Law Infirmary.—Asst. Res M.O. At rate of £150.
Leicester Royal Infirmary.—Jun. Res. Anaesthetist. £125.
Liverpool City.—Res. Asst. M.O.'s for Special Hospitals. Each £200.
Liverpool Heart Hospital.—H.P. At rate of £100.
Liverpool, Mill-road Infirmary.—Sen Res. Asst. M.O. (Surgical). £350.
Liverpool University, Lectureship in Bacteriology.—£400
Macclesfield General Infirmary.—Second H.S. At rate of £150.
Manchester Ancoats Hospital.—Two H.S.'s. Each at rate of £100.
Manchester Ear Hospital, Grosvenor-square, All Saints.—H.S. At rate of £150.
Manchester Northern Hospital, Cheetham Hill-road.—Hon. Pathologist. £100. Also Bio-Chemist for Pathological Dept. £120.
Manchester Royal Infirmary.—Res. Clin. Pathologist. £150.

Miller General Hospital, Greenwich-road, S.E.—Anæsthetist. 52 guineas.
Newcastle-upon-Tyne, Hospital for Sick Children.—H.P. and H.S. Each at rate of £100.
Northampton County Mental Hospital, Berrywood.—Deputy Med. Supt. £550.
Norwich, Jenny Lind Hospital for Children.—Res. M.O. £120.
Nottingham Children's Hospital.—Res. H.S. At rate of £150.
Nottingham General Hospital.—H.S. For Ear, Nose and Throat Dept. At rate of £150.
Oswestry, Robert Jones and Agnes Hunt Orthopædic Hospital.—H.S. At rate of £200.
Preston, County Mental Hospital, Whittingham.—Deputy Med. Supt. £750.
Princess Beatrice Hospital, Earl's Court, S.W.—Hon. Clin. Asst.
Princess Elizabeth of York Hospital for Children, Shadwell, E.—Cas. O. Also H.S. Each at rate of £125.
Queen Mary's Hospital for the East End, E.—Cas. and Out Patient Officer. At the rate of £150.
Queen's Hospital for Children, Hackney-road, E.—H.S. and Cas. O. Each at rate of £100. Also Sen. Res. M.O. At rate of £200.
Reading, Royal Berkshire Hospital.—Cas. O. At rate of £125.
Rochdale Infirmary and Dispensary.—Jun. H.S. £200.
Rotherham Hospital.—Cas. H.S. £150.
St. Albans, Middlesex Colony for Mental Defectives, Harper Lane, Shenley.—Second Asst. M.O. £460.
St. Leonards-on-Sea, Buchanan Hospital.—Hon. Anæsthetist.
Sheffield, Children's Hospital.—H.S. At rate of £100.
Sheffield, Royal Infirmary.—Ophth. H.S. At rate of £120.
Stoke-on-Trent, Longton Hospital.—H.S. £160.
Sunderland Royal Infirmary.—H.P. £120.
Sutton and Cheam Hospital, Surrey.—Two Hon. Physicians.
Tunbridge Wells, Kent and Sussex Hospital.—H.S. £150.
Walsall, Manor Hospital.—Jun. Res. Asst. M.O. £150.
West Africa, St. Joseph's Hospital, Bolahun, Liberia.—M.O. £250.
Worksop, Victoria Hospital.—Sen. H.S. At rate of £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Llantrisant (Glamorgan), and Chester (Cheshire); latest date for receipt of applications July 30th; at Linlithgow, W. Lothian; applications before August 6th.

Births, Marriages, and Deaths

BIRTHS

BRUCE.—On July 16th, at Ranchi, India, the wife of Nigel Patrick Bruce, B.M. Oxon., of a daughter.
BUNYAN.—On July 18th, at Devonshire-place, the wife of John Bunyan, Surg. Lt. (D), R.N.V.R., Sheerness, of a son.
DREW.—On July 14th, the wife of Capt. W. R. M. Drew, R.A.M.C., of a son.
GALLAGHER.—On July 19th, the wife of C. E. Gallagher, M.R.C.S. Eng., Sidcup, Kent, of a daughter.
MCELDOWNEY.—On July 17th, at Carlton-road, S.W., the wife of A. P. McEldowney, M.R.C.S. Eng., of a daughter.
ORD.—On July 18th, at Knaresborough-place, S.W., the wife of G. E. Ord, M.B. Aberd., of a daughter.
PETERKIN.—On July 13th, at Hull, the wife of Dr. J. H. Stuart Peterkin, of a son.
SHEPPERD.—On July 16th, at Sutherland-avenue, W., the wife of Ronald Shepperd, L.D.S. R.C.S., of a daughter.

MARRIAGES

LEE—JACOBS.—On July 16th, at the Central Synagogue, Maurice Lee, F.R.C.S. Eng., of Wimpole-street, to Rosalie Doreen, elder daughter of Mr. Gaskell Jacobs, of Regent's Park.
MACDONALD—BOYLE.—On July 19th, at the Cathedral Church of St. Mary, Edinburgh, George Alexander Macdonald, M.B. Glasg., to Marguerite Louise Edwina, eldest daughter of Captain W. E. Boyle, A.E.C., Edinburgh.
PAYNE—WILLIAMS.—On July 20th, at St. Laurence Church, West Woodhay, Richard Vaughan Payne, M.B. Camb., to Zoë Mary Williams, only daughter of Mr. W. A. Williams, of West Woodhay.
ROBINSON—JACKAMAN.—On July 16th, at St. Giles' Church, Stoke Poges, Bucks, Allan Betham Robinson, M.B. Lond., to Evelyn Margaret, younger daughter of Mr. C. J. Jackaman, of Slough.

DEATHS

DE LISLE.—On July 14th, at Brunswick-square, Hove, Samuel Ernest de Lisle, L.R.C.P. Irel., many years Superintendent of Three Counties Asylum, aged 85.
FLETCHER-BARRETT.—On July 6th, suddenly, at Royat, France, William Fletcher-Barrett, M.B. Lond., of Cairo, Egypt.
GRANT.—On July 17th, Charles Graham Grant, L.R.C.P. Edin., V.D., Barrister-at-Law, Lieut.-Colonel R.A.M.C. (T.F.), late First Clerk of Arraigns, Central Criminal Court, aged 71.
HAYNES.—On July 16th, at Royal Naval Hospital, Chatham Surg.-Comdr. John Frederic Haynes, M.R.C.S. Eng., of Leamington Spa, aged 44.
MILLER.—On July 17th, at Clive-court, W., Arthur Alan Miller, M.D. Durh.
SHAW.—On July 18th, at a nursing home, Inverness, John Shaw, M.B. Aberd., of Grantown-on-Spey, formerly of Denmark-hill, S.E., aged 57 years.
TREDINNICK.—On July 20th, in London, Ernest Tredinnick, M.R.C.S. Eng., L.R.C.P. Edin., formerly of Craven Arms, Shropshire, aged 84.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary

SOCIETIES

INTERNATIONAL NEUROLOGICAL CONGRESS.
MONDAY, July 29th.—9.30 A.M. (University College, Gower-street, W.C.), opening. 10 A.M., Discussion: The Epilepsies—their Ætiology, Pathogenesis, and Treatment.
TUESDAY.—9.30 A.M., Discussion: The Physiology and Pathology of the Cerebro-spinal Fluid.
WEDNESDAY, July 31st.—9 P.M. (B.M.A. House, Tavistock-square, W.C.). Prof. O. Foerster: The Motor Cortex in Man in the Light of Hughlings Jackson's Doctrines. (Hughlings Jackson memorial lecture.)
THURSDAY, August 1st.—9.30 A.M., Discussion: The Functions of the Frontal Lobe.
FRIDAY.—9.30 A.M., Discussion: The Hypothalamus and the Central Representation of the Autonomic System.

Notes, Comments, and Abstracts

A LADY COMPANION

Dr. Kathleen Vaughan writes:—"I have just made the acquaintance of Jinny, a chimpanzee of 18 months old, and brought up from birth by an Englishwoman, who lives near Daru in West Africa. Jinny seems to understand everything, is obedient and clean, and can fetch things when told. After having her hair trimmed she tries to use the scissors and comb for herself. She is affectionate and kisses her friends the dog and cat. She can wash her own face, cleans the floor with a damp duster, can open the door and gets on to a tricycle but likes to turn the pedals with her hands. A day or two ago she took a tablecloth, which had been hung up to dry, off the line, and brought it into the house, just before rain came—but we think this was a coincidence! When her mistress told her to give the dog half her biscuit she did so, but when he wanted her piece she put it in her mouth, showed it to him and then dodged behind the leg of the table, ducking her head when he came near. This went on for a long time; finally she let him take it from her mouth. She has been taught she must never take food and can only have it when it is given to her.

"Can your readers suggest a career for such a civilised little person, for here comes the sad part of the story. The owner has a young baby and cannot look after both charges. Jinny loves to help push the pram and kisses the back of the baby's head, but will probably be jealous of it. She must be sold. What is the best thing to do for her? Would Elstree take her, or a zoo where she could act as governess to young chimpanzees?

It has been ascertained that there are as many chimpanzees at Regent's Park as are wanted. Jinny is in Alderney at present with her owner, Mrs. G. Basham, to whom inquiries may be addressed."

THE RESTORATION OF THE CRYSTAL PALACE

ON Thursday evening, July 18th, H.R.H. The Duke of Kent visited the Crystal Palace to see the recently restored architectural courts. Many of these and the statuary, having been there for 80 years, had fallen into dilapidation, and in that state merited the general neglect received. Now, under restoration, the Crystal Palace has claims on public attention, apart from the well-known displays of fireworks. It is the only building in England possessing a whole series of courts, which illustrate architecture through the ages, and are built on a scale large enough to give a definitely realistic impression of ancient, mediæval, and renaissance art. The chief feature of the restoration is a full-size replica of the courtyard of a Pompeian house. This had been closed to the public for 25 years, but two years ago intensive restoration work was started by the staff of the Palace and the mural colouring and mosaic paving have been restored to their former brilliance. The Crystal Palace should again be numbered with the popular pleasure resorts of London.